THE BLAME GAME

Monitoring tools can do more harm than good if used to spread blame rather than solve problems. **Page 70**

HACK OF THE MONTH

Deborah Radcliff explains how to protect yourself from attempted attacks on the SNMP monitoring protocol. **Page 62**

Deborah Radcliff

ERP PAYOFFS

Enterprise resource planning pros can expect great pay, and great opportunities. **Page 50**

COMPUTERWORLD

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PAUL FORTNER, former head of the euro project at Owens Corning, says the company postponed completion of its euro project by 12 months, to the first quarter of 2001

EURO-STALLED

HERE COMES ANOTHER IT DEADLINE: Multinational companies need to revamp their systems to deal with the euro currency by July 2002. But Thomas Hoffman reports that some euro projects that began with great enthusiasm have lost momentum, resources and business management attention. Analysts worry that big companies are underestimating the amount of work to be done and the difficulty of getting their supply chains on board. Check out the experts' tips for jump-starting a stalled euro project.   *Story is on page 20.*

WINDOWS 2K DEBUT RAISES QUALITY CALL

Few apps certified, so user testing urged

BY DOMINIQUE DECKMYN

Last week, only eight of more than 7,000 applications ported to Windows 2000 had been certified to run on it. That's partly because Microsoft Corp. has decided to clamp down on sloppy code, but it's also partly because server certification specifications were late and some application vendors are balking at the high cost of certification.

The bottom line for users: Test your applications to make sure they work properly with the new operating system.

Customers should definitely do internal testing before rolling out applications that are merely labeled "ready," said Peter Olledart, group manager in charge of Windows 2000 certification at Microsoft.

Certification, page 14

Six users say yes, no or maybe to Win 2k. See pages 16 and 17.

CW survey: Users demand OS stability

BY KIM S. NASH AND DOMINIQUE DECKMYN

With next week's formal shipment of Windows 2000, Microsoft Corp. wants to overcome its reputation for selling buggy first-version operating systems that can't support thousands of users.

And users sure want Microsoft to overcome that reputation, too.

According to an exclusive *Computerworld* survey of 102 Microsoft customers, the No. 1 benefit users hope to get from Windows 2000 is stability. Yet if they don't install the operating system right away, the overwhelming reason will be because they doubt the stability of Version 1.0 (see charts, page 14).

"Microsoft has to earn the *Windows 2000, page 14*

RETAIL CONFRONTS IT CULTURE CLASH

Pace causes friction between bricks, clicks

BY CAROL SLIWA

An IT developer working for Nordstrom.com walked into her general manager's office one day and proclaimed, "I can't take it."

She was frustrated that her applications weren't retested and bullet-proofed the way they typically are at traditional information technology shops, recalled Bob Schwartz, executive vice president at Nordstrom Inc.'s online retail unit.

It's the kind of culture clash that happens as speed-driven dot-com units increasingly work with brick-and-mortar IT departments that are more accustomed to building rock-

solid systems [News, Jan. 31].

"The clashing is around egos and jealousy. Some of the people on the legacy side feel they're being left behind. They're not part of the frontline glamour," said Howard Rubin, a research fellow at Stamford, Conn.-based Meta Group Inc. "And the people on the e-business side — they're stuck in the little world of arrogance."

Culture clashes? "They come up all the time. They get worked out," said Jaake Jacobson, vice president of Internet technology at Macys.com. "To be quite frank, we knew that was going to be an issue going into this."

It helps that the leaders at Macys.com and Federated Systems Group — the Atlanta-
Culture Clash, page 87

LIFESTYLE PERKS: TOP TALENT LURE

IT grads cite flextime, as they get $43k to start

BY JULEKHA DASH

Things look good in information technology for the class of 2000.

A national survey by the National Association of Colleges and Employers shows that this year's college graduates will have 15% more jobs from which to choose. And students seeking IT positions can ex-

pect $43,000 as an average base salary, according to Jobtrak Corp., a Los Angeles-based online recruiter.

Because most employers offer competitive salaries, graduating seniors say the decision about what job to take often comes down to lifestyle issues such as a casual work environment and flexible hours.

After receiving more than a half-dozen job offers, senior Alex Fajkowski, a computer science major at Cornell University in Ithaca, N.Y., signed on with American Management Systems Inc. The Fairfax, Va., consulting firm offered a
Talent Lure, page 87

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rules

of business no longer apply

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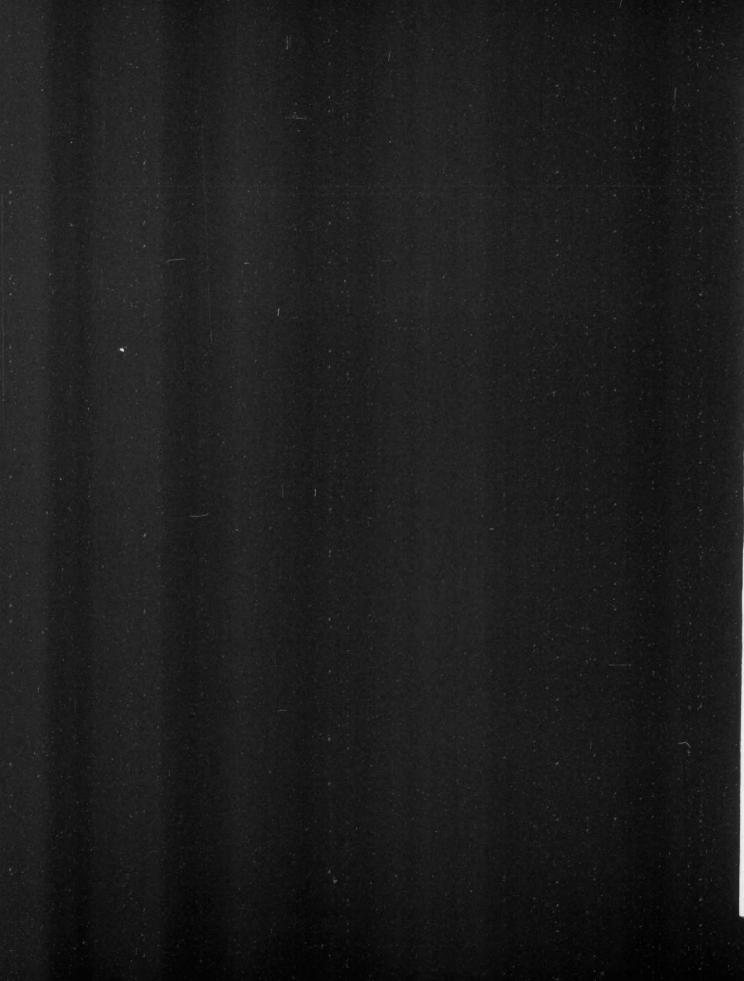
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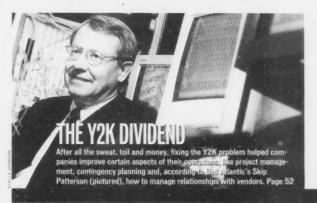
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costs because it simplifies system management. Windows 2000 is the operating system for the way business is done

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THE Y2K DIVIDEND

After all the sweat, toil and money, fixing the Y2K problem helped companies improve certain aspects of their operations, like project management, contingency planning and, according to Bell Atlantic's Skip Patterson (pictured), how to manage relationships with vendors. Page 52

EXEC TECH

A trio of products that will help keep your notebook from being stolen.
Page 68

COMPUTERWORLD THIS WEEK

FEBRUARY 7, 2000

www.computerworld.com

Dot-coms: Ready For Some Football

Super Bowl advertisers report no problems from traffic spikes

BY JAIKUMAR VIJAYAN

THE FIRST hits came only seconds after LastMinuteTravel.com Inc.'s commercial hit the air during the waning moments of Super Bowl XXXIV.

For the next 12 nerve-racking minutes, executives at the company's Atlanta headquarters watched tensely as the number of page views quickly climbed past the 20,000-per-second mark, slowing response times to about 15 seconds from 7 seconds.

But the site didn't crash.

Last week, dot-com companies that aired commercials during this year's big game were congratulating themselves for having emerged largely unscathed from brief — but staggeringly huge — spikes in traffic generated by their highly visible ads.

Their experience suggests that the increasing use of professional hosting services, sophisticated network- and load-management technologies and a tendency to build in lots of redundant server capacity are helping firms better deal with sudden spikes in Web traffic, said Gene Shklar, a vice president at Keynote Systems Inc., a San Mateo, Calif.-based Internet performance measurement company. "Overall, Web sites performed remarkably well," he said.

Keynote tracked the performance of 35 companies that advertised during the Super Bowl broadcast. Only nine showed measurable service degradations, most of which were restricted to periods immediately after the ads aired.

Though differences were minimal, "generally speaking, companies that have had more experience on the Web were more consistent and reliable" than newcomers, Shklar added.

Consider New York-based HotJobs.com Ltd., which made its second Super Bowl appearance this year. The first time, its site got knocked off the air by a 120% surge in traffic in the days following its Super Bowl ad. This time around, a sixteenfold increase in server capacity, major changes to its database architecture and new load-balancing switches ensured that the site stayed up — even as page views on Super Bowl Sunday hit 2.6 million, or 4.5 times last year's number, said CIO George Nassef Jr.

"The machines we had could have handled a much, much larger spike," Nassef said.

Even newcomers such as Computer.com Inc. and OurBeginning.Com Inc. claim to have had no problems.

In addition to building in lots of server headroom, both companies used the services of Internet content delivery services provider Akamai Technologies Inc. in Cambridge, Mass., to help carry the load. By caching frequently accessed Web content, such as a home page or images, on Akamai servers worldwide, both companies were able to off-load traffic from their own networks.

"Akamai took 90% of our traffic when the commercials ran," said Jordan S. Olin, chief technology officer at Computer.com in Maynard, Mass. Of the 40,000 pages per second served up by Computer.com during peak traffic, Akamai handled more than 35,000, Olin said.

A similar arrangement with service provider Digital Island Ltd. in San Francisco ensured that LastMinuteTravel.com's server resources were never taxed to more than 60% of their capacities, said Jay Ramadorai, the company's chief technology officer. "Our site held up really well during the crisis," he said.

Orlando-based OurBeginning.com contracted with both Akamai and a service provider in Virginia to provide network bandwidth and physically host its nine brand-new Unix servers. The site, which sel's stationery for special events, performed without a hitch, even as traffic soared more than 500%.

And with a 400% surge in post-Super Bowl sales, "we are definitely looking forward to being there next year," OurBeginning.com CEO Mike Budowski said. ▶

Super Bowl Advertisers

Many of the dot-coms that advertised during the Super Bowl got immediate reactions from viewers. At some sites, response times increased from a typical average of less than 10 seconds to almost a full minute after their commercials aired.

COMPANY	AVERAGE RESPONSE TIME	TIME RESPONSE VARIATION OCCURRED (PST)	SLOWEST RESPONSE TIME
LastMinuteTravel.com	7.39 sec.	7-7:15 p.m.	52.90 sec.
AutoTrader.com	9.25 sec.	6-6:15 p.m.	28.20 sec.
Kforce.com	3.73 sec.	5:45-6 p.m.	15.15 sec.
Computer.com	2.99 sec.	7:15-7:30 p.m.	6.04 sec.
HotJobs.com	2.81 sec.	None	No change
Monster.com	3.16 sec.	None	No change

SOURCE: KEYNOTE SYSTEMS INC. SAN MATEO, CALIF.

Free Software Brings Small Suppliers Online

Opens doors to 57 e-commerce exchanges

BY JULIA KING

VerticalNet Inc. and The EC Co. are clearing the way for thousands of small-fry suppliers to play with the big boys in the booming business-to-business e-commerce arena.

Under a deal announced today, Palo Alto, Calif.-based EC will provide small and midmarket suppliers with free software to connect to Horsham, Pa.-based VerticalNet's collection of 57 Internet-based industry exchanges.

Once connected, the smaller suppliers — many of which now do business by telephone and fax — can conduct all business electronically, exchanging purchase orders, advanced ship notices and other trading documents with big buyers over the Internet.

The EC Exchange service functions much like a value-added network, handling all the transaction processing behind the scenes. Suppliers pay a monthly service fee based on transaction volume. Pricing begins at about $45 per month for 25 transactions.

"This levels the playing field," said Carl Lehman, an analyst at Meta Group Inc. in Stamford, Conn. "The issue for a long time has been that electronic commerce stopped short of those companies that couldn't afford it. This makes it easy for companies to get on digital exchanges without having to cough up a lot of upfront money."

Large companies typically bypass small and midmarket suppliers that can't process their orders electronically. Paper-based transactions are too expensive and prone to inaccuracies, according to procurement officials. As big companies move more of their procurement online, a presence on the exchanges is critical for smaller suppliers.

Forrester Research Inc. in Cambridge, Mass., forecasts that by 2001, the average corporation will conduct $49 million in business over four separate digital exchanges, up from $19 million on one or two exchanges today.

Pittsburgh-based Fisher Scientific Co., a $2.5 billion distributor of laboratory equipment and supplies, doesn't conduct business on a digital exchange, but it does use EC's service to send orders directly to smaller suppliers' in-house enterprise systems. Before it started using the service, Fisher didn't even consider a company without electronic capabilities as a potential supplier. "Larger companies with the financial capability to install electronic-commerce systems had the advantage," said Carl Mathews, director of procurement. "We considered only them for private-label business and big volumes." ▶

CERT Warns Of Malicious Code on Sites

BY ANN HARRISON

In an unusual move, several computer security organizations last week issued a joint warning about the spread of malicious software scripts that can be posted to a Web site and expose corporate networks to attack.

They can also allow a site to send bad data or unwanted pictures or scripts that may compromise or capture sensitive information such as users' passwords, according to an advisory issued by the Computer Emergency Response Team Coordination Center (CERT/CC) at Carnegie Mellon University in Pittsburgh.

There have been no reports of this problem occurring so far.

"But we've been working to understand the problem and give people information as a proactive measure to mitigate the risk," said Bill Pollack, team leader for technical communication at the CERT/CC.

This is an atypical warning from the CERT/CC, which generally focuses on distributing information about widely known security vulnerabilities.

The CERT/CC (*www.cert.org*) has posted two documents describing short-term solutions. ▶

AT DEADLINE

Ford Gives Workers PCs, Web Access

In a bid to get its workforce thinking and surfing like Web-savvy consumers, Ford Motor Co. said it will provide home PCs and Internet access to its 370,000 employees in the U.S. Working with PeoplePC Inc. in San Francisco and Hewlett-Packard Co., the Dearborn, Mich.-based automaker will provide a color printer and charge workers $5 per month for Web access. Ford eventually intends to extend the project to its workers around the globe.

StorageTek Drops Triple Bomb

Storage Technology Corp. delivered a triple whammy: up to 600 job cuts, the CEO's exit and an expected quarterly loss. The Louisville, Colo.-based company said CEO David Weiss had resigned after a poor fourth-quarter showing that would result in a loss of 10 cents per share. StorageTek blamed lower profit margins from its consulting and integration service and a slowdown in spending on new storage equipment by customers.

Hershey's ERP Woes Continue

Seven months after it was fully installed, a $112 million enterprise resource planning (ERP) and order-fulfillment system is still souring business at Hershey Foods Corp. The Hershey, Pa.-based candy maker last week reported that sales and profits both declined 11% in the fourth quarter of last year. Hershey blamed the results on continued problems in processing orders. This is the second quarter in a row the company has taken a financial hit because of the new system.

EDS Revenue Goes Up

Electronic Data Systems Corp. posted an 11% increase in fourth-quarter revenue. The Plano, Texas, firm attributed the rise to more customer contracts. It signed four times as many contracts last quarter as in the same period the previous year, including a $6.4 billion outsourcing agreement with MCI WorldCom Inc.

Online Bank: Lax Security Opened Door for Thieves

X.com says theft halted; customer disagrees

BY ANN HARRISON

A START-UP Internet banking service has revealed that a flawed security policy that allowed customers to transfer funds without verifying bank account numbers resulted in close to $10,000 worth of illegal transfers.

But at least one person has charged that online thieves tried to transfer more than $50,000 from his bank account using a stolen account number.

Before revising its policy on Jan. 22, X.com Corp. in Palo Alto, Calif., allowed customers to transfer up to $2,500 from any U.S. bank account and then withdraw the money by entering only account and bank routing numbers on the X.com Web site.

According to company CEO Edward Harris, the would-be crooks, entering data from other people's accounts, attempted six unauthorized fund trans-

fers that were halted by X.com.

Imad Khalidi, CEO of Auto Europe LLC, a car rental agency in Portland, Maine, said he discovered on Jan. 14 that someone had used his account number to siphon $21,000 out of his company's bank account to pay for Gucci merchandise.

Khalidi said thieves made

AT A GLANCE

Elias Levy, *CTO at Security-Focus.com, notes that X.com, like many other online financial services firms, uses the **Automated Clearinghouse Network** for electronic fund transfers. He says the **Electronic Payments Association** in Herndon, Va., which sets business practices for the network, allows the receiving party in electronic fund transfers to **determine their own policies on account verification**. Levy warns that customers drawn to the convenience of online banking may not be aware that these security policies are **unregulated**.*

four other attempts to transfer money from his account via X.com and Wilmington, Del.-based WingspanBank.com, including an attempted $23,000 transfer. The online grifters then posted Khalidi's account numbers to an Internet forum.

"They are building Web sites without security, and they never asked for a voided check," said Khalidi about X.com and WingspanBank.

WingspanBank.com didn't immediately reply to Khalidi's allegations. The company did issue a statement that asserted, "We are aware of the industry issues surrounding [the Automated Clearinghouse Network] transfers, we are committed to the highest level of security for our customers and are continually evaluating and enhancing our security systems as appropriate."

According to Harris, X.com, a division of First Western National Bank, a small bank in La Jara, Colo., has changed its security policies to require customers to fax or mail a voided check, signature card and a copy of a driver's license

to verify bank account numbers for transfers of any value.

Harris said none of the attempted transfers involved the actual theft of money. He said X.com notified law enforcement officials and the Federal Deposit Insurance Corp. of one attempted incident and was in communication with one financial institution, which he declined to name. X.com didn't comment on Khalidi's charges.

"In this situation, X.com did a pretty good job of discovering what was going on and took steps to change the policy to respond to customer concerns swiftly," said Rob Leathern, an analyst at New York-based research group Jupiter Communications Inc.

But Elias Levy, chief technology officer at San Mateo, Calif.-based security consulting firm SecurityFocus.com, said he was told by X.com that it was forced to change its procedures after receiving calls from fraud departments at other banks. "It's incredible how appalling their lack of security was. The potential for damage is enormous," said Levy. ▶

FTD.com to Outsource Net Infrastructure

Florist aims for 99.95% availability

BY JAMES COPE

Flower seller FTD.com Inc. in Downers Grove, Ill., announced last week that it will overhaul its Web site in mid-March and outsource the whole internetworking infrastructure to Intira Corp. in Pleasanton, Calif.

Intira calls itself a "netsourcing" company, a term coined by The Yankee Group in Boston to describe contractors that run mission-critical e-commerce networks.

Fred Johnson, CIO at FTD.com, said Intira will be totally accountable for the network infrastructure. That's different from what a standard Web-hosting firm provides, Johnson

said. Some may only supply pieces of the network, thereby leaving the user to manage multiple resources.

That difference became especially apparent to Johnson when he reviewed proposals from five network contractors.

"We got a lot of line-item stuff [in the proposals]," Johnson said. "We wanted to buy a car, not a bunch of car parts. We wanted someone [who] could take care of everything below the application layer."

Johnson also wanted a network contractor that would share the pain if an outage occurred. That concern resulted in a service-level agreement that costs Intira a day's worth of fees for

FRED JOHNSON's retail site needed uptime support and popular skill sets

every 15 minutes the network is down, said Intira CEO Bernie Schneider.

Neither Johnson nor Schneider would say exactly how much the contract or this level of service will cost FTD.com. But Schneider said 99.95% availability generally costs 60% more than a guarantee of 98.5% availability.

Johnson said the extra cost doesn't seem out of line. The guaranteed level of network uptime requires not only redundancy of network components in a single data center, but also duplication of systems across two Intira data centers, he said.

"This is our store. If it's not open, customers aren't being

served," Johnson said. "And it still doesn't cost as much as hosting the site inside."

One factor that drove Johnson to outsourcing is that FTD.com simply couldn't acquire and retain the employee skill sets it needed to run the Web site in-house. Moreover, "we would need those skills only a small percent of the time," he said.
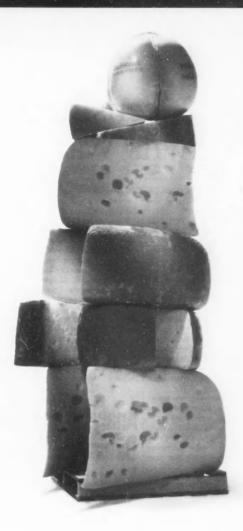
Day-to-Day Responsibility

Under FTD.com's new arrangement, Intira will have total day-to-day responsibility for anything associated with the Web, including providing the hardware and managing the databases, Johnson said.

IBM Global Services developed the e-commerce applications that will run on Intira's servers. The applications will connect to FTD.com's back-end transaction processing system, which in turn will fulfill orders through the company's network for FTD florists. ▶

Sun Licensing Strategy Spawns War of Words

'Open' to Sun means 'not so' to Linux fans

BY ROBIN ROBINSON

EXACTLY WHAT IS "open" is open for debate within the software licensing world.

Confusion arose with last week's announcement by Sun Microsystems Inc. that it would release its network file system under a so-called industry standards source-code license, which it claims is open. But Sun made the same claim the previous week in announcing that its Solaris 8.0 Unix operating system will be part of the Sun community source license.

Sun is allowing developers to see the source code but won't allow any changes without its approval. It will also assess licensing fees for any revenue made from derivatives of the operating system that meet with its approval.

Observers contend that Sun expects the new licensing strategy to stem corporate users' growing interest in Linux. But within the open-source software developers' community, Sun's move isn't enough.

"People will look at the [Sun] license and say, 'Screw this. Why make those people richer, when all they're going to do is make it proprietary? We can go to Linux and know that nobody is going to get rich in a way that we can't get rich,'" predicted Eric S. Raymond, president of the Open Source Initiative.

Tim O'Reilly, CEO of technical books publisher O'Reilly & Associates Inc. in Sebastopol, Calif., said he advised Sun about its licensing options last year when it was considering releasing the Solaris upgrade under an open-source license.

"Even if they open-sourced it, it's not going to compete with Linux in the same way. It doesn't run on cheap PC hardware, and people have rallied behind Linux," O'Reilly said. "There was a time when if Sun had given access to the source and held the reins, it might have benefited them. But Linux is too strong."

Being "open" has allowed the fledgling Linux operating system to experience tremendous growth. That's because it can be freely distributed and because so many developers have been able to create applications that run on it or connect to it through application programming interfaces — two key requirements of "open" software licenses.

Last year, Linux had 25% of the worldwide market for purchased server operating systems, according to a preliminary survey by International Data Corp. (IDC) in Framingham, Mass. That number was up dramatically from 1998 figures and implies that more organizations are considering using or already are using Linux as an operating system within departments, according to Dan Kusnetzky, an IDC analyst.

Making software truly fully open "leads to extensive peer review, which leads to reliability," Raymond said. "Lots of folks . . . will be willing to put time and effort into improving Linux who won't put time into Sun because of the Sun arrangement." ▶

Analysts See SCO's Future Diminished by Linux Threat

Tarantella for Linux could hasten the demise of UnixWare

BY DOMINIQUE DECKMYN AND ROBIN ROBINSON

NEW YORK

Several analysts who follow server operating systems predict that The Santa Cruz Operation Inc.'s (SCO) days as a Unix operating-system vendor are numbered and that the company will become a service-and-support organization.

Last week at LinuxWorld here, SCO said it was porting its Tarantella Web-server software to Linux. The product, due in the second quarter, would be SCO's first commercial offering for the Linux platform, though the Santa Cruz, Calif.-based company began offering support for Linux users last year.

SCO led in Unix server operating system shipments in 1999, according to preliminary data from International Data Corp. But all Unix variants amounted to only 15% of total server operating system software purchased last year, compared with Linux's 25%.

"They're facing the fact that their best channel is starting to look to Linux, and they're trying to position themselves as having been through the wars," said Dan Kusnetzky, an analyst at IDC. SCO is trying to appeal to the major Linux vendors with its worldwide service organization, he said.

"I think the future for SCO is more in service and products such as Tarantella, rather than in operating systems. I've talked to several companies with point-of-sales applications where Linux is displacing SCO," said analyst Stacey Quandt at Giga Information Group Inc. in Santa Clara, Calif.

To emphasize its commitment, SCO invited top executives from Lindon, Utah-based Caldera Inc. and Germany's SuSE Inc. to sit with SCO executives during the Tarantella announcement at LinuxWorld.

"SCO is trying very hard to look benevolent and supportive of open-source computing, but Linux is clearly a competitive operating system on Intel that can only hurt SCO," said George Weiss, an analyst at Gartner Group Inc. in Stamford, Conn.

Ironically, SCO's delivery of Tarantella for Linux could speed Coastal Transportation Inc.'s three-year migration to Linux from its last remaining SCO UnixWare server, said information systems manager Tom Pratt.

Seattle-based Coastal has a database from Informix Corp. in Menlo Park, Calif., and core business applications running on the UnixWare server. All other applications for its 80 users — including a Web server, mail server and print and file server — run on Linux. Between SCO's Tarantella announcement and Informix's porting of its database to Linux, Pratt could now migrate all of Coastal's operations to Linux. "I intend to stay with SCO, for now, but if I could get away with a purely Linux thing, I would," Pratt said. ▶

SPARC Machines With Preinstalled Linux Get Sun Nod

Sun Microsystems Inc. made another cautious move into the Linux market at the LinuxWorld show last week, announcing that Bell Microproducts Inc. in San Jose will start shipping Linux servers based on Sun hardware.

The rack-mountable servers won't bear the Sun brand name, but instead will feature the "Ultra-SPARC Driven" logo that already appears on a variety of devices such as printers (but thus far, no computers) that have embedded Sun UltraSPARC processors.

Linux already runs on SPARC systems, but until now there was no officially sanctioned channel to buy systems with Linux preinstalled. The system boards aren't the same design as those used in Sun's own servers. Pricing starts at $2,099.

The following also occurred at LinuxWorld:

■ iPlanet E-Commerce Solutions, the joint venture between Sun and America Online Inc. that was formerly known as the Sun/Netscape Alliance, announced Linux versions of its iPlanet Messaging Server and iPlanet Web Server, Enterprise Edition software.

■ The Trillian Project announced that source code of its port of the Linux operating system for Intel Corp.'s IA-64 processor family has been released to the open-source community. The Trillian Project was formed a year ago to port Linux to the upcoming 64-bit Intel architecture.

■ Oracle Corp. offered its Dotcom suite at $6,767 for a one-seat developer license. This includes the Oracle8i database, application server and WebDB – all of which run on Linux.

■ Informix Corp. offered its Internet Foundation 2000 package at $199 for a one-seat developer license for Linux users through Oct. 10. A Unix-based version of that software typically costs $2,000.

– Dominique Deckmyn and Robin Robinson

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NEWS

Congress Takes Up Internet Tax Fight

Some members back permanent moratorium

BY PATRICK THIBODEAU
WASHINGTON

THERE IS A STARK divide in the debate about whether e-commerce should be taxed, and Ken Brame, CIO at Service Merchandise Co., is clearly on one side of it.

But he's on the side that, so far, is losing in Congress. "We're at a competitive disadvantage compared to the pure e-commerce players because we have to charge sales tax" on online sales, Brame said. The Brentwood, Tenn., retailer operates in more than 30 states and must collect sales taxes in most of those jurisdictions.

U.S. Rep. Christopher Cox (R-Calif.) and Sen. Ron Wyden (D-Ore.) last week introduced a bill to make the three-year moratorium on new and discriminatory Internet taxes a permanent fixture. The current moratorium, originally sponsored by Cox and Wyden, is set to expire in October.

But the Cox/Wyden bill wouldn't affect the issue at the heart of Brame's complaint: collection of existing sales or use taxes by remote vendors.

Under present court rulings, a state can't force a company to collect sales tax unless it has a physical presence in that state. This lets Internet and mail-order vendors sell goods in other states without charging tax.

A bill introduced last fall by Sen. John McCain (R-Ariz.) would go much further than the Cox/Wyden proposal by turning the Internet into a "tax-free zone" and prohibit the collection of sales and use taxes on Internet sales.

The McCain bill is opposed by supporters of the National Governors' Association proposal, which would create intermediaries to calculate and collect taxes for online transactions. This would shift tax collection costs to the states.

Not all governors support the system. Gov. Paul Cellucci (R-Mass.), said taxes "would choke off a burgeoning industry before we experience its full economic benefit."

Members of the divided Advisory Commission on Electronic Commerce are drafting a compromise that would ban Internet access fees, eliminate the 3% federal excise tax on telecommunications and simplify rules for determining whether a business has a physical presence in a state, said commission members familiar with the effort. ◗

SERVICE MERCHANDISE'S BRAME: Pure e-commerce players have edge

White House to Ease Computer Export Rules

Industry officials want deeper reform

BY CRAIG STEDMAN

The White House last week announced plans to relax federal export controls on computers for the second time in the past seven months.

But computer industry officials who are lobbying for a deeper reform of the technology export-control system said they don't expect to see that happen anytime soon.

The changes proposed last week would raise the system-performance levels at which computer vendors need to get licenses from the government in order to sell to customers in so-called Tier 2 and Tier 3 countries. The latter category, for example, includes China, Russia, India and Israel.

Ed Black, CEO of the Computer & Communications Industry Association (CCIA) in Washington, said that would provide only "a temporary reprieve" from the need to continually loosen the export limits to keep pace with ongoing increases in mainstream computing power. "We shouldn't be worrying every six months about raising the [allowable performance] levels so we can sell computers," Black said.

The CCIA hopes to persuade the government to overhaul the export-control system, but Black said the vendor trade association doesn't expect to make much headway this year because Washington is distracted by the upcoming presidential elections and foreign-policy concerns.

The Information Technology Industry Council (ITI), another Washington-based trade association, also isn't looking for major reforms this year. Even the changes announced last week won't become official for up to six months while Congress reviews them. The ITI said it wants to lower the implementation delay to no more than 30 to 60 days.

Outdated export control rules could harm U.S. computer and semiconductor firms that must compete against foreign vendors unencumbered by such rules, said Dan Hoydysh, director of Unisys Corp.'s Washington office. "There seems to be a perception that no one in the world can make these products but us," he said. "That's simply not true." ◗

The IDG News Service contributed to this report.

Antitrust Trial Briefs Pile In

BY PATRICK THIBODEAU
WASHINGTON

In a series of court papers filed last week by friends and foes of Microsoft Corp., antitrust trial Judge Thomas Penfield Jackson got volumes of advice for dealing with the software giant.

The most important brief may have been the one submitted by Harvard Law School professor Lawrence Lessig, who focused on an area that has given Jackson trouble: the 1998 appeals court ruling that said Microsoft could legally integrate its browser with its operating system.

Jackson had appointed Lessig as a special master, or advisor, in the case. Microsoft accused Lessig of being biased, but the appeals court dismissed him as unnecessary to the case.

Others who filed briefs last week included the Association of Competitive Technology, which filed in support of Microsoft, and the Software and Information Industries Association, which filed in support of the government. Former federal Judge Robert Bork submitted a brief on behalf of the states.

Most of the arguments raised in these briefs are already spelled out in the case, said William Kovacic, a law professor at George Washington University in Washington. "On the whole, their impact will be relatively modest," he said.

A key issue in the case is whether integrating the Internet browser with Windows was "tying," the linking of two or more products. Microsoft argues that the browser and the operating system aren't separate products, but Jackson said he could see "no consumer benefit" to "Microsoft's refusal to offer a version of Windows 95 or Windows 98 without Internet Explorer."

Lessig acknowledged that the case law in this area is unsettled, but he said the appeals court's decision wasn't broad enough to necessarily affect the outcome of this case.

Jackson will likely take Lessig's analysis "very seriously," Kovacic said. ◗

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NEWS

HP Launches OpenView Suite That Offers Business View

BY SAMI LAIS

In the stampede to supply enterprise management software that reports information technology systems data in a business context, Hewlett-Packard Co. today stepped away from the pack with its announcement of the OpenView VantagePoint suite.

Presenting a business process view "is the direction IT management products have been trying to go," said Jasmine Noel, an analyst at D. H. Brown Associates Inc. in Port Chester, N.Y. But "HP has also gone a long way toward automating" the basic process mapping and management, she said.

In creating the business transaction-based application management suite, which will be available April 1, HP rebranded tools such as IT/Operations Manager and OpenView Observer and integrated them with new tools.

The integration takes "disjointed tools and wraps them into an excellent package," said Corey Ferengul, an analyst at Meta Group Inc. in Stamford, Conn. Added features such as performance-data correlation and knowledge bases "raise HP out of obscurity in performance management," he said.

VantagePoint also gives managers a more complete management package than what is available from industry leaders such as BMC Software Inc.'s Patrol and CommandPost products and ManageIT from Computer Associates International Inc., Ferengul said.
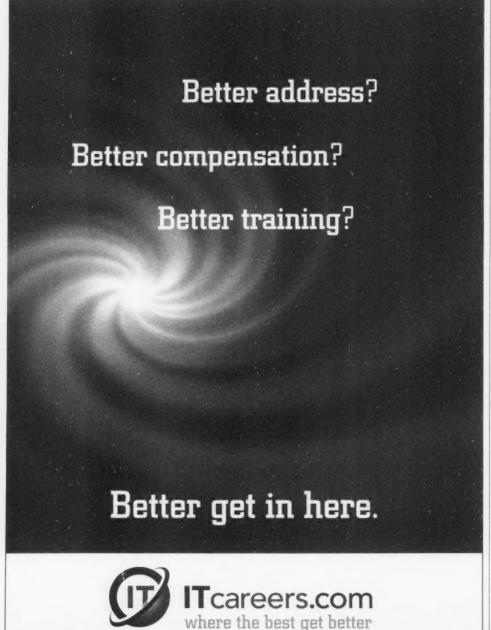
VantagePoint continually and automatically discovers the hardware and services that support business transactions. If a user added a multi-CPU server running SQL, VantagePoint would "autodiscover the box and the SQL services, understand what kind of policies are needed to support it and automatically deploy them," said Magdy Assem, HP's OpenView product manager.

"This type of thing is what customers need to begin moving their infrastructure to more of a business-process-oriented" context, said analyst Caryn Gillooly at Hurwitz Group Inc. in Framingham, Mass.

But it's the single management console that most appealed to Dean Hancock, network and application administrator at Pacific Coast Building Products Inc. in Sacramento, Calif., which last week began a beta test of the new suite.

With 60 sites in nine states, an Oracle-based data center in Sacramento and an ongoing five-year SAP rollout, the building products manufacturer and distributor doesn't have the IT staff to manage everything. "So we're always in a firefighting mode," Hancock.

VantagePoint will also be the first major package built on the Common Information Model standard set last year by the Distributed Management Task Force. ▶

BRIEFS

IBM Offers ERP Help

IBM Global Services last week announced its extended enterprise service for companies that have just implemented an enterprise resource planning package. Post-implementation services include change management, training, high availability and disaster recovery.

$192B Wireless Deal

Mannesmann AG agreed to a friendly $192 billion takeover offer from Vodafone AirTouch PLC, ending months of wrangling. Officials for the new wireless telecommunications giant will have dual headquarters in the U.K. and Germany.

Rite Aid Taps New CIO

Rite Aid Corp. in Camp Hill, Pa., appointed Don P. Davis, 48, as its new senior vice president and CIO. Davis was previously vice president for application delivery at Lowe's Companies Inc. in North Wilkesboro, N.C. Davis said his priority would be to help the company work through its financial difficulties. Rite Aid's CEO left in October after the company discovered accounting irregularities.

DoubleClick Protest

The Center for Democracy and Technology in Washington launched an e-mail campaign to protest alleged privacy violations by DoubleClick Inc. The protest came after DoubleClick revealed plans to build a database of consumer profiles that would include users' names, addresses and online purchases.

Short Takes

BUSINESS OBJECTS SA reported 1999 net income of $23.8 million, up 131% from $10.3 million in 1998. Its revenue rose 45% to $241.6 million. . . . EPICOR SOFTWARE CORP. plans to announce software that supports online sales and lets customers check their account records online. . . . The NATIONAL ASSOCIATION OF RECORDING MERCHANDISERS in Marlton, N.J., sued SONY CORPORATION OF AMERICA, alleging Sony forces retailers to direct their customers to Sony's online stores.

Logistics Deal Aims to Rev Ford Supply Chain

Contract with UPS will be designed to let dealers, customers track vehicles on Net

BY LINDA ROSENCRANCE

FORD MOTOR CO. and Atlanta-based United Parcel Service of America Inc. have teamed up to build a system designed to slash the time it takes to deliver a vehicle from the factory floor to dealerships by as much as 40%.

It currently takes the Dearborn, Mich., automaker 14 to 15 days to deliver vehicles from its factories to customers, company officials said.

The companies said 150 employees from UPS Logistics Group and 40 employees from Ford would work together on the project. However, company officials wouldn't release any details on the financial aspects or the information systems the team will be creating.

Frank Taylor, Ford's vice president of materials, planning and logistics, said the alliance would boost customer satisfaction, in part by providing more precise vehicle delivery information while also trimming distribution and inventory costs. As part of the project, Ford plans to "re-engineer its transportation network of rail and road carriers to optimize speed, precision and reliability," Taylor said.

New IT and More

"We are introducing new management practices, eliminating bottlenecks, minimizing delays and providing information technology systems that greatly improve the monitoring of vehicles across the entire journey to the customer," said Dan DiMaggio, CEO of UPS Logistics Group.

Greg Burns, an analyst at Lazard Freres & Co. in New York, said the deal could help cut Ford's distribution costs associated with online procurements.

"It's extremely important to streamline supplier distribution costs," Burns said. "You can have the best online exchange, but there are trade-offs on warehousing, transportation and inventory-carrying costs, and unless you can make decisions in real time, you lose against that trade-off."

Real-time, supply-chain optimization technology will also help keep costs down, said Burns.

DiMaggio said UPS Logistics Group will provide Ford dealers, and ultimately their customers, with the capability to track vehicles throughout the journey from production to delivery via the Internet.

Scheduled to be launched next month, the network will be phased in over a 12-month period, Taylor said. The first phase of the project will focus on the Western and Southwestern regions of the U.S. before the project expands through the country and into Canada.

The network is expected to be fully operational next year, with dealer online systems completed later this year and customer online systems finished soon after.

DiMaggio said that after the first year, UPS may team with other automakers to create similar information systems. ▶

Computerworld reporter Lee Copeland contributed to this article.

Outsourcing Won't Always Pay Off With Huge Savings

BY CRAIG STEDMAN
BOSTON

Application hosting can provide some welcome benefits to users, including reduced IT costs. But companies that outsource their business applications shouldn't count on those savings being huge.

That was one of the messages sent last week by a panel of users who are outsourcing their installations of Lawson Software Inc.'s financial and human resources applications. Several of the users said companies may have to find ways to help justify application hosting decisions other than pointing at expected savings in information technology costs.

For example, Heilig-Meyers

Co., a $2 billion furniture retailer in Richmond, Va., expects to lower its IT costs by as much as $2 million per year by outsourcing management of a new payroll and human resources system based on software from Lawson, based in St. Paul, Minn.

Money Isn't Everything

But that wasn't enough to sell corporate executives on the application hosting idea, said Lee Pringle, director of financial and human resources systems at Heilig-Meyers. "It really isn't a cost proposition for us," he said. "That was part of the equation, but it wasn't the most significant part."

Instead, the IT department emphasized that outsourcing the human resources applications would let the company redirect internal resources to its more important store systems, Pringle said.

Now, IT staffers are trying to get Heilig-Meyers to outsource Lawson financial applications that were installed internally last year. But Pringle said business managers still aren't convinced that the move would produce enough savings to make it worthwhile.

Reid Hospital & Health Care Services in Richmond, Ind., began running Lawson's financial and materials management applications in a hosted setup last fall.

Craig Kinyon, chief financial officer at the 227-bed hospital, said the outsourcing deal is expected to reduce Reid's $5 million IT budget by only about $150,000 per year. "It's a small percentage," he said.

Other selling points that were used to justify the hosting move were the ability to speed up systems upgrades and a reduced need to hunt for IT workers to hire. "We're located out in a no-man's-land area, so recruiting is a challenging endeavor," Kinyon said. "It's hard to find people."

Those kinds of intangible benefits are likely to be more common for users who outsource enterprise resource planning (ERP) applications than is "saving tons and tons of money," said Karen Moser, an analyst at Aberdeen Group Inc. in Boston.

"You're not going to get a really robust ERP system dirt-cheap just because it's [hosted] on the Web," Moser said. "You still have to pay someone else to maintain all that for you."

For Netherlands-based PharmaPlaza.com, the big impetus for outsourcing Lawson's applications was the expectation that it would help speed up the process of developing online drugstores in five European countries.

"It's hard to [hire] an IT staff to support fast rollouts in multiple countries," said Evret Jan Hoijtink, the company's CIO. ▶

NEWS

Certification

As of Jan. 31, only eight applications had been deemed "Certified for Windows 2000 Professional" by Santa Monica, Calif.-based VeriTest, the company Microsoft chose for the certification task. The server testing started just last Monday, in part because the specifications for certifying server applications — originally issued in June — were changed in December.

Microsoft said it still hopes to have more than 30 applications certified at launch and 100 to 150 applications six months after that.

Microsoft's Web site lists about 7,000 applications that are "Ready for Windows 2000." But a mention in this list merely means that the vendor has tested its own application and will support its use on Windows 2000.

The lag in certification is unlikely to hold back the Windows 2000 rollout, which is generally expected to be slow.

Dave Maxey, technical leader in charge of operating systems infrastructure at Sears, Roebuck and Co. in Hoffman Estates, Ill., said the company's own testing, not certification, will determine whether an application runs safely on Windows 2000. He noted that so far he has seen few applications that don't.

But a dearth of truly certified applications may leave many customers, especially those without the resources to do their own testing, with only the Ready for Windows 2000 list as a basis for their decisions. And that list, unlike previous logo campaigns for Windows 98 and Windows NT 4.0, involves no third-party testing.

Meanwhile, some big vendors don't appear to be in a rush to get their applications tested. Dick Sullivan, vice president of integrated solutions marketing at IBM, said the company hasn't submitted any applications for certification so far and will decide "on a product-by-product basis."

Sullivan said IBM's server applications will fully exploit Windows 2000, but he questioned the value of server certification. "For server code, what does certification mean?" asked Sullivan. "Our customers know [that] if it doesn't work, we'll fix it," he said.

Dan Kusnetzky, an analyst at International Data Corp. in Framingham, Mass., said Microsoft needed to address Windows NT's spotty reputation for stability. Kusnetzky said some vendors may see the expensive and lengthy certification procedure as a Microsoft ploy to delay the launch of products that compete with its own.

Certifying a complex server application at VeriTest can cost up to $37,000, said Marc Zasada, vice president of certification programs at VeriTest's parent, Lionbridge Technologies Inc. in Waltham, Mass.

But David Vitak, director of product management at Damgaard Inc. in Ponte Vedra, Fla., said he estimated the total cost of preparing for and achieving certification for its Axapta 2.1 client software at more than $100,000, including "37 manweeks" of development work. Axapta is an enterprise resource planning application for small and midsize firms.

Windows 2000

trust of large IT organizations," said Michael Gartenberg, an analyst at Gartner Group Inc. in Stamford, Conn. "A lot [of deployment decisions are] riding on how reports come back in after [Windows 2000] rolls out."

A lot is riding on this for Microsoft, too. Windows 2000 is a critical new product. With it, the company intends to storm the very biggest IT enterprises, stealing business from Unix players and proving it can handle the largest applications.

And that's where stability comes in. Users interviewed have mixed views on whether they're willing to trust Microsoft's assurances. And a *Computerworld* survey of 103 Windows 2000 beta testers last fall found that most companies don't plan to deploy the software for at least six months after it ships [Technology, Dec. 6]. But analysts last week said client and server migrations should be in the clear as long as complicated features are rolled out more slowly.

Elf Atochem North America Inc., a chemical company in Philadelphia with 4,000 users, won't seriously evaluate Windows 2000 until other companies install it. "Absolutely, I will find out what my peers say," said Bob Rubin, Elf Atochem's CIO (see related story, page 17).

Larry Andrews, a manager of network operations at a major entertainment company in Burbank, Calif., said he will stay away from Windows 2000 because he's worried that Microsoft has tried to pack too many features into it. The more the operating system does, the more that can go wrong, Andrews said.

Others agreed about that complexity. Vickers Inc., an aerospace parts maker in Maumee, Ohio, won't install the server version, even though users there will get the desktop edition this year. "We've just managed to get an NT server cluster up and running, and it was really hard to set up," said Gary Hamlett, Vickers' IT manager. "So right now, we'd prefer not to touch it for a while."

But other users that have been evaluating test versions are quite pleased. For example, Travelers Property Casualty Corp. in Hartford, Conn., and Charles Schwab & Co. in San Francisco said they have found no major problems and plan wide rollouts (see related stories, pages 16 and 17).

Gartner, meanwhile, has reversed its previous advice to delay deploying Windows 2000 and now says users can go right ahead, said Gartner analyst Michael Silver.

Others agreed. "This is the most tested Microsoft product ever. They know they can't screw this one up," said Dwight Davis, an analyst at Summit Strategies Inc. in Seattle.

Microsoft is adamant that the product is more than ready for mission-critical computing. It has spent more than $162 million and 500 man-years on reliability issues alone, said Keith White, a Windows marketing manager. That included studying 5,000 NT 4.0 server implementations to find problems that could be corrected or avoided in Windows 2000, White said, then enlisting 750,000 beta sites. "The goal was not to have to depend on a Service Pack to get the reliability we wanted," he said.

Still, Silver advised caution. It's safe to install Windows 2000 immediately, he said, but users should hold off on new, complicated features such as Active Directory. For that, he said, wait for the first or second Service Pack — patches and fixes that will make the overall product easier to use. The first is due in June.

Another issue for users is the number of applications that will be ported to run on Windows 2000. Fifty-eight of 102 users in the *Computerworld*

Others who have already gone through the procedure said it is much harder than previous certification procedures. But they said they expect to profit from the marketing muscle Microsoft is expected to throw behind the program.

And the end user will benefit, too, said Jais Agertoft, product manager at Denmark's Navision Software AS, which recently completed a three-month effort to get certification for its accounting and financial software. "The user is guaranteed a stable product," he said. ▶

poll said having a large number of applications for the operating system is crucial to their migration plans. Microsoft says that at least 7,000 will be "ready" by Feb. 17. But only eight were certified last week. ▶

Windows 2000 Certification

The "Certified for Windows 2000" program requires applications to support advanced Windows 2000 features

WORKSTATION CERTIFICATION

Requires support for:

■ New Windows Installer procedure

■ Windows 2000 Accessibility options

■ Roaming users (meaning one user can access preferences on any machine)

■ Mobile users (meaning a user can disconnect a laptop and continue to work without rebooting)
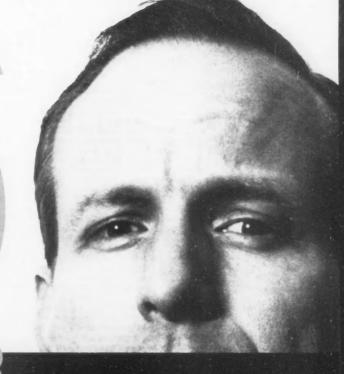
SERVER CERTIFICATION

Requires support for:

■ Service publication (applications announce to Active Directory which resources they utilize, such as printers or databases)

■ Single sign-on

■ Clustering (for advanced certification only)

(Certification specifications for Windows 2000 Datacenter not published yet)

Users Crave Win 2000 Stability . . .

Main benefit users hope to see, by number of respondents:

44
15
11
21
11

■ More stable environment
■ Lower total cost of ownership
■ Unified directory
■ Easier software rollouts
■ Other

. . . But Aren't Sure They'll Get It

Reasons to delay Windows 2000 rollout:

53
13
12
5
19

■ Doubts about stability of first release
■ Hardware upgrade costs too high
■ Lack of applications certified for it
■ Software upgrade costs too high
■ Other

Base: Survey of 102 Microsoft operating system users

SOURCE: COMPUTERWORLD RESEARCH

TALK ABOUT A

NO

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NEWS WINDOWS 2000

Users Ponder Migration: Yes, No or Maybe

Colgate Sticks With Solaris on Server for SAP

BY DOMINIQUE DECKMYN

NO "For us to upgrade technology for the sake of technology is not something we will do," said Ed Toben, CIO at Colgate-Palmolive Co.

The New York-based global consumer goods company's main information technology drive over the past few years has been a worldwide rollout of SAP AG's R/3, started in 1996 and now mostly completed. It's a complex environment, Toben said, so sticking with a standardized platform for both client and server makes a lot of sense.

"Our strategy is based on SAP [R/3], because that's what runs our business," Toben said. "We will move our various operating systems as SAP requires to move them."

ED TOBEN, CIO at Colgate-Palmolive, sees no need to move to Windows 2000

Colgate-Palmolive runs the applications on Sun Microsystems Inc.'s Solaris and has absolutely no intention of budging. "We're happy with Solaris," Toben said. The company picked the platform after testing servers from most major vendors four to five years ago. But Toben has noticed that some new applications — including SAP — now launch on Windows NT first and Unix second.

On the client side, Toben currently sees no need to move from Windows 95 and 98 to Windows 2000, though he said Windows 2000's promise of easier software installs "would be attractive."

"Because we are talking about 20,000 users, when we make a decision to move [to another operating system], that's a major effort," he explained.

"We really have to partner with strategic partners. For us, that's Sun and SAP," Toben said. Indeed, a more important migration for Colgate-Palmolive this year, he noted, is to SAP R/3 Version 4.6. ◗

Sears Mulls Win 2k for Client, But It Might Keep OS/2 Servers

BY DOMINIQUE DECKMYN

Retail giant Sears, Roebuck and Co. is "seriously leaning" toward an implementation of Windows 2000 but is still studying the issue.

"We like to think of ourselves as a fast follower in operating systems," said Keith Watkins, vice president of information technology support at the Hoffman Estates, Ill.-based company.

On the client side, Windows 2000 migration appears to be virtually certain, but the project will probably not start until the third quarter and will probably take several years to complete. On the server side, the company is still evaluating other possibilities — including sticking with IBM's OS/2 or moving to Unix.

In 1998, Sears started to migrate its clients from OS/2 Warp to Windows NT 4.0, but its servers are still primarily OS/2-based. The two main attractions of Windows 2000 for Sears are the new operating system's security features and the self-healing capability of applications, called IntelliMirror. "We have a lot of help desk calls, and any way to reduce those and increase service levels will be great," Watkins said.

In contrast, the capabilities **MAYBE** inherent in Microsoft Corp.'s Active Directory are "not what is driving our migration plans," said Dave Maxey, Sears' technical leader in charge of operating systems infrastructure.

'No Pressing Need'

Maxey said the company may not decide to implement Active Directory until well after it starts rolling out Windows 2000 on the desktop. He said he sees "no pressing need" for a single directory spanning the entire global company.

"The company is so large that a single [directory] solution is not always the best," noted Watkins.

Maxey said it's still not really clear what the "pain level" of a Windows 2000 migration might be. "We've run into some inconsistencies in the

> We like to think of ourselves as a fast follower in operating systems.
>
> **KEITH WATKINS, VICE PRESIDENT OF INFORMATION TECHNOLOGY SUPPORT, SEARS**

documentation [of the beta versions]," he said. Because of those inconsistencies, setting up a script for unattended operating system installs took a lot longer than anticipated.

The biggest remaining issue is whether the company's applications will still run. Sears has many custom server applications on OS/2 that it would need to port in the migration. On the client side, application testing is still ongoing but is not expected to turn up any problems. But a missing driver for certain Token Ring cards may hold back client rollout.

"We prefer not to be bleeding-edge," Maxey concluded. ◗

Travelers Partners With Microsoft for Big Move

BY KIM S. NASH

Feb. 17 is D-Day not only for Microsoft, but for Travelers Property Casualty Corp., too.

The insurer promised Microsoft it would go live with a "meaningful" installation of Windows 2000 by the time the new operating system shipped. That was in exchange for tailored help and lots of attention from the vendor under its

YES: Within 18 months, Travelers will migrate 1,500 servers and 23,000 workstations in 150 offices to Windows 2000.

joint-deployment program.

Travelers chose two medium-size field offices that use about 80% of the company's core insurance-claim writing and processing applications. Another factor in choosing those sites was their proximity to Travelers' headquarters in Hartford, Conn.

"We picked them on the East Coast, so we could get to them if we had to," said CIO Diana Beecher. But the company won't stop there. Within 18 months, it plans to roll out Windows 2000 to 1,500 servers and 23,000 workstations in 150 offices, companywide.

In October, Microsoft sent seven Windows 2000 specialists from Redmond, Wash., to study Travelers' systems over six days, then advise the company on how to migrate, Beecher said. Travelers then did its own testing of its applications under Windows 2000, as well as stress-testing of the operating system itself.

"I think every single thing we identified, every bug, has been corrected in the go-to-manufacturing version" of Windows 2000, Beecher said.

The biggest draw for Travelers is Windows 2000's Lightweight Directory Access Pro-

DIANA BEECHER, CIO at Travelers Property Casualty

tocol (LDAP) features. LDAP is a directory standard for exchanging administrative data over the Internet. The insurer plans to do more business on the Web in the next year, selling insurance and communicating with business partners.

Travelers sees LDAP as a secure way to grant access privi-

leges to insurance agents in the field. Without it, Beecher said, "it would take a lot of manual effort to keep straight which insurance agent was writing which kind of policies and could therefore get to which systems."

With Windows 2000, "Microsoft has delivered a higher quality than I have seen them do in the past," she said. "They have been listening to enterprises in the last few years. When we told them they can't deliver stuff full of bugs to an enterprise, they heard us."

Despite Travelers' participation in Microsoft's joint-deployment program, the firm didn't get a break on Windows 2000 pricing, Beecher said. ◗

NEWS WINDOWS 2000

NT, Win 2k Will Coexist on Schwab Boxes for 2 Years

BY DOMINIQUE DECKMYN

At Charles Schwab & Co., migration to Windows 2000 is an obvious next step — on desktops, laptops and servers. "We've been a big NT shop for a long time," said Bob Lee, vice president of intranet and distributed technologies at the San Francisco brokerage. "My goal is to be done [with the migration] in two years."

And software upgrades to Windows 2000 were included in a multiyear software licensing deal signed with Microsoft Corp. in 1998.

Schwab moved to Windows NT 4.0 from NT 3.5 almost three years ago. Before that, the company briefly flirted

YES: Schwab plans to migrate all PCs, laptops and servers within two years. It has been on NT 4.0 for three years.

with Unix on the desktop. The company also has a few Novell Inc. NetWare servers and "a ton of Unix" servers.

"If there is one component of Windows 2000 [we really want], it's Active Directory," Lee said. He said he hopes it will lead to a lower total cost of ownership, mainly thanks to the ability to centrally manage group policies and to "publish" applications to users.

The decentralized domain structure in NT 4.0 "is getting unwieldy," Lee said. "It's hard to maintain consistency across domains."

Getting an Active Directory infrastructure in place will be Schwab's first move, starting next quarter. That means servers will move first to Windows 2000, with the bulk of desktops following in 2001.

"We do not see a lot of benefit from [migrating] the desktops before the servers are in place," Lee said. However, for the company's NT laptops, Lee does see some immediate benefits from Windows 2000, such as better support for power management and off-line folders.

Lee hasn't calculated the costs or the return on investment of the move. But he said any returns will take time. "The way I sell it to the organization is around the long-term benefits," Lee said.

"If we were to fault Microsoft with anything, they are pretty aggressive in driving people to migrate," Lee said. "It's by no means a trivial exercise."

Lee also said Microsoft needs to provide better tools for system management, including tools to manage the Active Directory. For instance, he said he regrets the absence of good tools to monitor directory replication. He is considering third-party tools from companies like FastLane Technologies Inc.

One big challenge at Schwab is that Windows 2000 and NT 4.0 will coexist on most desktops for about two years. That means new applications must be tested twice — on NT and Windows 2000 — for the next year or two. Windows 2000 "is going to cost us more for some time before it costs us less," Lee concluded. ▶

Elf Atochem Is Happy With Vines for Now

BY KIM S. NASH

NO You go first. That's what chemicals giant Elf Atochem North America Inc. is telling people who ask about moving to Windows 2000.

"Microsoft products tend not to be as stable as they should" be in the first release, said Bob Rubin, CIO at Elf Atochem in Philadelphia. "Our interest is to wait and see what happens with those individuals who have more of a burning desire than we do to be, shall we say, in the forefront of implementing it."

For now, the $10 billion company is happy with its current setup, which features a Vines network operating system and directory from Banyan Systems Inc. with Windows 98 on user PCs.

First Things First

Before evaluating Windows 2000, Elf Atochem wants to roll out Microsoft's Office 2000 application suite to its 4,000 users.

Then the company will look at the server version of Windows 2000 before any desktop version because it just upgraded PCs to Windows 98 last year, Rubin said.

Microsoft's product will have a tough act to follow. Vines has been inexpensive and stable, he said. "But it has the downside of quickly becoming obsolete, making it more difficult to tie other [software] pieces to it," he noted.

But Elf Atochem makes no technology changes unless "there is going to be a measurable difference in what the company's customers see," Rubin said. "We're not sure what Window 2000 would give us."

In the larger scheme, IT at Elf Atochem must fight for funds that other departments are also vying for, he said.

"Even if Windows 2000 were to be better than our present platforms, [management wonders whether there] are better uses for our money overall," he explained.

Meanwhile, Rubin will talk with CIO cohorts about their experiences with Windows 2000 before making any moves. So far he has heard that Microsoft has tested the operating system well. But he's skeptical that a program of 30 million to 40 million lines of code is problem-free.

"We need to make sure there's not anything damaging to us in there before we make a change," he said. "Anything with that number of lines of code is scary." ▶

ELF ATOCHEM CIO Bob Rubin: Better uses for company's money?

'Anxious To Move,' Pacific Life Awaits Active Directory

BY KIM S. NASH

With about two dozen servers already in production on Windows 2000, Pacific Life Insurance Co. plans a companywide migration. And the sooner the better, information technology managers there said.

"Windows 2000 will become the new standard for us," said Cameron Cosgrove, vice president of information systems at the life insurance division of Pacific Life in Newport Beach, Calif.

YES: By the end of next year, 2,500 PCs and 250 servers will run Windows 2000 at Pacific Life.

The insurer expects to see big benefits from the new system, including easier, less-expensive administration and better, more coherent control of user access privileges via Active Directory.

And Pacific Life doesn't see the migration process itself as particularly burdensome, Cosgrove said.

The plan is to move 90% to 100% of the user PCs and servers in the company's life insurance and institutional products divisions to Windows 2000 by the middle or end of this year. The annuities and corporate units will follow by the end of next year. A total of 2,500 desktops and 250 servers will run on the new operating system.

"We're viewing this as a migration from our established Windows NT installed base. We're anxious to move," Cosgrove said.

What is unknown, however, is how long the old will coexist with the new, said Matthew Hansberger, a manager of network operations at Pacific Life.

Active Directory will be up before the existing NT 4.0 directory is disabled, of course. Plus, some less-used but important applications written by Pacific Life three or four years ago will need to be ported, Hansberger said.

Most software compatibility problems have been worked out, but a few remain.

For example, Pacific Life has a homegrown application in its institutional products division that uses Computer Associates International Inc.'s OpenRoad database. But OpenRoad isn't compliant with Windows 2000, despite patches sent by CA, said James Senecal, a network engineer.

CA is "working on certifying it. Sixty percent of our users use this application, so we can't migrate them until [the problem is] solved," Senecal said.

A Microsoft Corp. consultant and an engineer from Unisys Corp. have been on-site at Pacific Life to help formulate migration plans — and to help lay blueprints for use of

> ❝ Windows 2000 will become the new standard for us.
>
> **CAMERON COSGROVE,**
> **VICE PRESIDENT**
> **INFORMATION SYSTEMS,**
> **LIFE INSURANCE DIVISION,**
> **PACIFIC LIFE INSURANCE CO.**
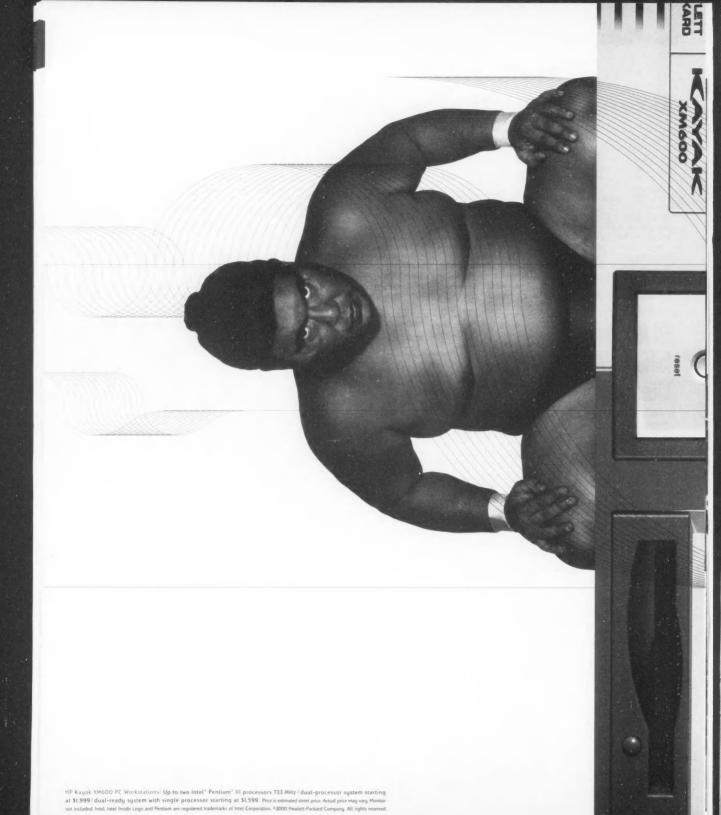
Active Directory, in particular.

Active Directory is one of the key drivers for such an enthusiastic Windows 2000 push. With it, the company plans to consolidate all user-access rights and security authorizations in a central place.

Now, Pacific Life developers must often program those traits into each application as it's built, Senecal explained.

The company hasn't quantified the value of the benefits it expects to reap. "But we know that a lot of this is easier to do [under Windows 2000], and it actually allows us to have more of an enterprisewide strategy for managing our computing environment," Cosgrove said. ▶

Euro Projects Bumped By E-Commerce, ERP

Despite 2002 deadline, EMU projects are losing momentum, resources and attention

BY THOMAS HOFFMAN

UNSHACKLED from Y2K projects, companies are racing to implement a variety of other initiatives, from e-commerce to enterprise resource planning (ERP).

But not the EMU.

The EMU, or Economic and Monetary Union, is Europe's three-and-a-half-year transition — begun in January 1999 — to a single currency, the euro, by July 2002.

For multinational companies that do any business in Europe, converting to the euro currency requires changes in financial systems, retail prices, databases and electronic data interchange systems.

But despite initial enthusiasm, some euro projects have stalled for lack of resources and business management attention, said Nick Jones, an analyst at Gartner Group Inc. in Egham, England.

Information technology employees have sometimes been reassigned to "more urgent" projects such as e-commerce, Jones said. Some IT departments can't forge ahead because they're waiting for key decisions from business managers — who have given euro projects a low priority.

"No more than one-third of Europe" is euro-ready today, Jones said. And according to a new study by PricewaterhouseCoopers and Niche Systems Inc., both based in New York, only 14% of business-to-business banking transactions within the euro zone — such as payroll and bill payments — are conducted in euros today.

Financial institutions had to switch to the euro on Jan. 1 last year to handle bond, stock and other transactions. And some big companies, such as German electronics giant Siemens AG, were aggressive about converting their internal accounting and other back-office systems to handle euro transactions by the end of last year.

But euro experts and surveys suggest that insurers, manufacturers, retailers and smaller businesses are lagging.

Euro project managers at companies like General Motors Corp., Du Pont Co. and Owens Corning said senior executives are allocating more resources and attention to e-commerce and other projects that boost the bottom line. Euro conversion projects are perceived as delivering little or no business value, they said.

For example, Wilmington, Del.-based Du Pont is tackling its euro project "with the least amount of money" and resources, said Uto Ludwig, director of information systems, Europe, in Hamburg, Germany. The company plans to complete the bulk of its remaining conversions over Easter weekend next year, instead of waiting until later, "when it could get more expensive," Ludwig said.

A Matter of Priorities

At Owens Corning, "there was more of a focus" on getting euro-ready 18 months ago than there is now, said Paul Fortner, who was head of the Toledo, Ohio-based company's euro conversion efforts until he became director of e-commerce last August. The company postponed the completion of its euro project by one year — to the first quarter of 2001 — as it focuses instead on rolling out an ERP system.

Fortner said there's no pressing business need to finish the euro project ahead of time. Still, the company is leaving itself the several months that analysts say big companies will need to validate and test their euro readiness.

European authorities currently plan for a six-month transition period — from January 2002 through June 2002 — when both euros and national currencies can be used. But sources said the transition period could be cut to two months in an effort to speed up euro adoption.

In a worst-case scenario, missing the 2002 deadline would mean that a business couldn't handle euro-based transactions in 11 European countries. More likely, it would mean using risky and disruptive work-arounds, Gartner Group reported.

Many EMU experts worry that big companies are underestimating the amount of work involved.

With Y2K, "you could fix a system without really knowing what it does," said Martha Bennett, an analyst at Giga Information Group Inc. in London. With the euro, companies "need to know how a system functions" in order to accommodate currency conversions, pricing changes and other operational alterations, she said.

Plus there's the big job of getting a company's entire supply chain euro-ready by 2002. Analysts fret that small and midsize companies will pro-crastinate until late 2001 — when contractors and consultants may be scarce and pricey.

For example, 41% of large European firms believe they will be forced to assist small to midsize companies with their EMU preparations in order to avoid supply-chain problems, according to a recent survey of 400 European executives by the Association for the Monetary Union of Europe in Paris.

Even Siemens, a euro-enthusiast, has had trouble lining up suppliers, according to sources, including Sarwar A. Kashmeri, president of financial consultancy Niche Systems.

Siemens asked thousands of suppliers to convert all of their invoices to euros by last October, but only 5% complied by the deadline, Kashmeri said.

The supply chain is certainly a concern at GM. The Detroit-based auto giant got more than 95% of its European suppliers to convert their contracts to euros by last June, said Roger Aze, EMU project manager at GM-Europe in Ruesselsheim, Germany.

But Aze said he's worried that GM's 3,200 European dealers — which make their IT decisions independently — will wait until the last minute to replace their dealer management systems. As Aze point out: "There isn't a lot of market pressure" for them to sell cars in euros right now.

If most car dealers wait to the eleventh hour to get euro-ready, the small vendors of dealership management software won't be able to handle all the work, Aze said.

Too Early to Panic?

Other CIOs and EMU project managers say it's too early to panic. For instance, Ford Motor Co. has already convinced about 800 of its 1,000 production suppliers to send their invoices in euros, said Willi Stegemeyer, EMU coordinator at Ford Credit Europe PLC in Cologne, Germany.

Dearborn, Mich.-based Ford is "on track" with its EMU project, Stegemeyer said. But he said there's a tendency among business executives at other companies to give the euro a lower priority — especially "when the boss lives in Asia or North America."

Bob Rubin, CIO at Philadelphia-based chemical maker Elf Atochem North America Inc., said he has "no reasons to be concerned" about the euro-readiness of suppliers and trading partners that help his company generate 70% of its business from Europe.

Rubin said he figures that companies will just throw their euro projects into overdrive as the deadline gets closer — just as they did with Y2K. ▶

MANY LARGE FIRMS see no business imperative to finish euro projects long before the deadline

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NEWS

Senate Hears Objections to 'Cyberalarm'

BY PATRICK THIBODEAU
WASHINGTON

A congressional committee last week began probing the conflicting privacy implications of a plan to create a centralized intrusion detection system for federal agencies, to determine whether this system is a benign burglar alarm or a potential Big Brother.

Members of the U.S. Senate Judiciary Subcommittee on Technology, Terrorism and Government Information also expressed concern that cyberterrorism poses grave threats to private companies.

"It's a great mistake to think terrorists nowadays will only and primarily attack government targets," said Sen. Dianne Feinstein (D-Calif.). "The battle has shifted to public and private computer networks, and society has become more vulnerable, not less."

The hearing covered the White House's recently released national plan for critical infrastructure protection, which calls for closer federal cooperation with the private sector, funding increases in security research and development and scholarships to train students in information security.

Security or Snooping?

But the most controversial aspect of the $2 billion plan is the development of a centralized system for most federal agencies. The plan would set up the Federal Intrusion Detection Network (FIDNet) to protect all agencies except defense-related agencies that have their own systems.

"Many of these proposals that seek at the onset to promote computer security in the end create a lot of computer surveillance," said Marc Rotenberg, executive director of the Electronic Privacy Information Center in Washington, who testified that FIDNet, as designed, would violate the law.

Citing a U.S. Department of Justice memorandum, Rotenberg said the DOJ had clear concerns over whether FIDNet's network monitoring would constitute wiretapping and therefore be subject to federal protections.
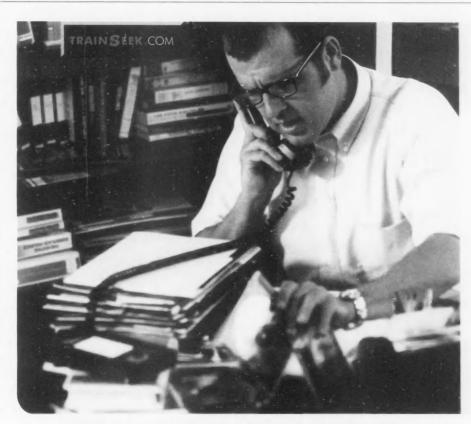
John Tritak, director of the U.S. Critical Infrastructure Assurance Office, said wiretapping pertains to voice communications, which the White House plan doesn't intend to monitor. "The intrusion detection was designed to identify e-mail traffic which may contain malicious code," he said.

No one wants a system that creates "virtual police states," said Tritak, but federal agencies aren't organized in a way that "reflects the demands imposed by the Information Age."

Committee Chairman Jon Kyl (R-Ariz.) said he disagrees with the characterization that FIDNet would produce "open-ended surveillance" of U.S. citizens, calling it "fundamentally not true." Kyl added, "Nobody is arguing that the government should have that authority." ▶

Chris Dressler, Senior Program Manager, NORDSTROMshoes.com

"So the challenge here was knowing the speed of how quickly we had to bring shoe vendors online."

"We went from 6 to 10 to 20 vendors and we're continuing down that road."

"So how do we rapidly do the development to make all this happen?"

BRIEFS

More Baan Losses

Baan Co. reported a $236.2 million loss for the fourth quarter of last year, as the Netherlands-based software vendor forewarned last month [Page 1, Jan. 10]. It was the sixth straight quarterly loss for Baan, which has had four CEOs since mid-1998. Fourth-quarter revenue totaled $143.3 million, up 9% from $131.1 million in the last three months of 1998.

PeopleSoft Profits

Pleasanton, Calif.-based PeopleSoft Inc., another business applications vendor that struggled last year, reported a $21 million operating profit for the fourth quarter last year. That number was down 87% from the year-earlier total of $164.1 million, and revenue dropped 9% to $372.3 million. Costs related to an acquisition left PeopleSoft with a $5.6 million net loss in the fourth quarter as expected [News, Jan. 10].

Short Takes

INTEL CORP. said it will buy Costa Mesa, Calif.-based ROCKWELL INTERNATIONAL CORP.'s wafer fabrication facility in Colorado Springs under undisclosed terms. Intel said it would invest up to $1.5 billion at the vacant plant to boost the plant's chip-making capacity. . . . AT&T CORP. registered with the SECURITIES AND EXCHANGE COMMISSION its plan to make an initial public offering in April for stock in its AT&T WIRELESS SERVICES INC. group in Redmond, Wash. . . . CISCO SYSTEMS INC. said James Richardson, head of the San Jose-based networking vendor's Europe, Middle East and Africa unit, will become senior vice president of the company's enterprise business June 1. . . . Rochester, New York-based EASTMAN KODAK CO. and HEWLETT-PACKARD CO. formed a joint venture to develop a system that offers digital imaging capabilities for both traditional film and digital files, using high-resolution scanning and imaging technologies. The venture is expected to offer products next year and generate $500 million to $1 billion in revenue by 2005. . . . BRITISH TELECOMMUNICATIONS PLC in London said it will lay off 3,000 managers after reporting a 24% dip in quarterly profits, to $1.05 billion.

Cisco Sets Sights on Midmarket Targets

Market forces make new networking segment attractive for network vendor

BY JAMES COPE

WITH the company's strong presence in enterprise networks, the recent announcement by Cisco Systems Inc. that it plans to train its guns on the midmarket wasn't a surprise. But it's sure to cause market ripples for rivals.

Late last month, the $12.2 billion networking vendor said it would offer midsize companies, via a reseller channel, fixed-configuration LAN systems for both Fast Ethernet and Gigabit Ethernet. The midmarket represents a business target made up of companies with approximately 500 employees and less than $1 billion in sales, according to Michael Speyer, an analyst at The Yankee Group in Boston.

3Com Corp. responded with its own announcement, touting midmarket networking products such as its Gigabit Ethernet-over-copper technology in its SuperStack II line of network switches and a Layer 3 module for SuperStack, which is marketed as less costly than buying a separate switch.

Stan Schatt, an analyst at Giga Information Group Inc. in Cambridge, Mass., said Cisco, which traditionally has gone after enterprise big game, is targeting micromarket segments. And the midmarket is a place where it may be easier for Cisco to add new sales, Schatt said, because there's already a 90% market penetration in the big corporate space where Cisco has excelled.

Unlike small and midsize businesses that buy on price, midmarket companies want high value in the networking components they purchase, and they're willing to pay for it, Speyer said. But he noted that midmarket users don't have the scaling requirements of large enterprises, so it's easier to sell a prepackaged network.

Cisco's midmarket focus may be disconcerting to companies like 3Com, Intel Corp. and Hewlett-Packard Co., which are eyeing the same customers, Schatt said. But it could mean major trouble for start-ups and small network equipment providers. Cisco buys chips for its switches and routers in such volume that it can be very competitive on price and cause competitors to squeeze profit margins, Schatt said. ▶

Vendors, Venture Capitalists Vie for Stakes in Start-ups

IBM, HP, Intel bring deep pockets to fray

BY MARK HALL

Major computer industry vendors are vying with venture capitalists for stakes in the best technology start-ups — and IT managers could end up benefiting from advances or be left behind the technology curve.

"Technology has become a driver of business strategy," said Vinod Kholsa, a partner at Kleiner, Perkins, Caufield & Byers, a venture capital firm in Menlo Park, Calif. "The CIO is becoming the key strategist for companies today, far more important than, say, the vice president of marketing." As such, Kholsa said, the CIO has a lot at stake in the investment strategies of both venture capitalists and vendors.

Venture capitalists are now competing with large investment funds from companies like Hewlett-Packard Co. ($1 billion), Intel Corp., IBM, Sun Microsystems Inc. (a $100 million Java fund) and others.

IBM is being particularly aggressive, expanding its role from that of a provider of credit to an investor in companies with no credit [News, Jan. 24]. But it has partnered with venture capitalists to find prospects.

"We don't want to pick the winners and losers. We want to piggyback on the experience of the expert," said IBM general manager of global financing Joe Lane. He said IBM's $500 million fund is an investment tool to help it sell its core product lines.

Andy Bryant, Intel's chief financial officer, echoed those sentiments, adding that Intel has turned $1 billion of investments into a portfolio worth more than $8 billion. "But this isn't about Intel saying, 'Let's create a fund.' These are strategic investments," he said.

Investments have to be compatible with Intel's strategic development efforts in order to expand markets that help the company sell more microprocessors, he said.

David Ezequelle, "entrepreneur in residence" at Alloy Ventures Inc., a venture capital firm in Palo Alto, Calif., said this kind of investment strategy offers some benefits to CIOs but also has some risks.

He said some CIOs can directly influence a vendor's investments because it might be willing to put money in a start-up that offers a product specific to an information technology manager's system needs. But he warned that no major vendor will invest in a technology that doesn't fit with an overarching growth strategy.

A venture capitalist, on the other hand, is always looking for technology that could change the way companies do business. "We're not trying to invest in what was hot yesterday," Ezequelle said. ▶

KHOLSA: Technology drives business strategy

DOJ Domain Probe Ends

BY KATHLEEN OHLSON

Network Solutions Inc. (NSI) last week said the U.S. Department of Justice's antitrust division has closed its formal investigation of the company.

The Justice Department began its probe in June 1997, investigating the Herndon, Va.-based domain name registrar's management of a database containing customer names and Internet addresses. Last year, NSI's monopoly in the domain name registration business officially ended as other organizations sanctioned by the Internet Corporation for Assigned Names and Numbers (ICANN) began registering Internet addresses.

Gina Talamona, a Justice Department spokeswoman, confirmed that the government agency had closed its investigation regarding Internet domain names, but she declined to say which companies had been under investigation.

In May last year, NSI said it was cooperating with an investigation by the Justice Department to determine whether the company was violating antitrust laws by monopolizing the master list of names and Web addresses in generic top-level domains such as .com, as critics were alleging.

On Jan. 25, ICANN accredited 12 new registrars for Web site addresses, including companies from the U.S., Australia, Germany and South Korea. They joined the 98 companies already accredited by ICANN since April last year. ▶

MARYFRAN JOHNSON

Growingpains.com

THE SIGNS ARE UNMISTAKABLE: The dot-coms are growing up. They're struggling into adolescence at the same warp speed that ushered them into the world just a few years ago. In short, they're becoming real companies with real problems. Problems like mergers and acquisitions.

Executive burnout and departure. Layoffs.

The poster child of Internet success, Amazon.com, is cutting 150 jobs from its 7,500-person payroll. Yet with typical (and admirable) Web moxie, the profit-challenged online powerhouse was busy diving into the furniture business through an alliance with Living.com. The small furniture maker was only too happy to pay for the privilege of becoming a featured merchant on Amazon's home page, reaching out to those 16 million potential customers.

But while the dot-coms grow up, where does that leave the majority of doddering old earth-bound businesses? Taking advantage of experience and resources, that's where. Consider the examples set last week by retailer Target and Hewlett-Packard, each of which just spun off new Web units to manage e-commerce initiatives. Watch as that trend continues to accelerate and the pace of these traditional company spin-offs really picks up. IT organizations will find in these ventures a tremendous outlet for talent that might oth-

MARYFRAN JOHNSON is editor in chief of *Computerworld.* You can contact her at **maryfran_johnson@ computerworld.com.**

erwise drift off to the dot-coms.

Ultimately, of course, making a profit will matter. *The Washington Post,* for example, runs a very snazzy Web site that lost $65 million last year. When asked last week by *The Wall Street Journal* (which is missing the profit mark on its own Web site) how long the losses would continue, the *Post's* chief financial officer said, rather morosely, "I think if we knew that, we'd all feel a lot better."

True enough. Yet the brick-and-mortar *Post* has the cachet of an established brand name and a history of respect for the work it produces. Longevity has its upsides. Let's face it, going through adolescence once is enough.

❖ ❖ ❖

As a silly aside, isn't it time we came up with a snappier nickname for non-dot-com companies? *Brick-and-mortar* is popular, but sounds so clumpy. *Concrete-and-steel?* Too cold. *Real world?* Sounds like MTV. *Terra firmas?* Too *Jurassic Park.* Any ideas out there? ◗

STEVE ULFELDER

No, I don't want fries with that cell phone

THANKS TO the maturation of data mining and customer relationship management tools, every 15-year-old cashier who can scan an SKU can try to sell you crap you don't want.
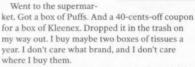
I'm sick to death of "upselling."

My cell phone was stolen. Went to a store for a new one. First thing out of the kid's mouth: "OK, we can upgrade you." Didn't want an upgrade. Wanted the same phone. The kid denied my old model still existed. I pointed at the one in the display case. He said they didn't have it in stock. I was halfway to my car when one materialized, praise be.

Called the cable company for service. Got the service. Also got a pitch for a special rate on the HBO/ Cinemax combo. I'm sick to death of *Sopranos* hype; I don't want HBO.

STEVE ULFELDER is a features writer at *Computerworld.* Contact him at **ulfelder@earthlink.net.**

Went to the supermarket. Got a box of Puffs. And a 40-cents-off coupon for a box of Kleenex. Dropped it in the trash on my way out. I buy maybe two boxes of tissues a year. I don't care what brand, and I don't care where I buy them.

Managed to make a dent in my credit-card debt. Got an oily letter a week later asking if I paid off the card because I plan to cancel it? Would a shiny low-rate line of credit change my mind? Hmm? Hmm? Pretty please?

I'm sick to death of three-days-on-the-job kids in the Parts department looking at the monitor, mispronouncing my name and saying, "I see your Family Truckster is due for its 15,000-mile maintenance. Can I schedule an appointment for you?" No. I'm here in *Parts,* rather than *Service,* so I can do it myself, Einstein.

Here's the thing. Remember when the Macintosh came out, and suddenly every memo was written in 16 typefaces? The technology was there, so people used it.

CRM tools have arrived. Many businesses have done a nice job of integrating them with databases. Any clerk can pull up a complete history of any customer. The technology's there, so people use it.

But the world got sick to death of those hallucinogenic Mac-created memos pretty quickly. *Judicious* use of the technology is the secret.

Panel 1: YOU'VE REGISTERED DOMAINS FOR ALL THE SPELLINGS AND POSSIBLE MISSPELLINGS OF OUR COMPANY'S TRADEMARKS. YOU'VE COVERED ALL OF OUR ELECTRONIC IDENTITIES. WE INTEND TO TAKE ACTION.

Panel 2: HOW'D YOU LIKE A JOB IN OUR MARKETING DEPARTMENT?

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NEWS OPINION

It always seems to take a while for people to learn that.

Here's why it matters to you: IT used to tell the board why the company couldn't do certain things. Then IT wised up and started telling the board how the company *could* do things. That's where CRM stands now — you *can* gather data on customers and use it at the point of sale, so you *do*.

Next challenge: Develop the confidence to tell the board that although you can do something, it may be smarter not to. That's right: It may be wiser to turn your back on some data-gathering and upselling opportunities in favor of less-intruded-upon customers.

It's a tough sell. It's also what they pay you for. Whether they like what you tell them or not. ▶

BILL LABERIS

No easy task to build e-commerce infrastructure

IF Y2K NOW APPEARS to be as old as some sepia-toned attic photos, it's probably because you've been just as utterly consumed by the new challenge of the century — namely, the imperative to build a 21st-century e-commerce infrastructure.

At least the Y2K issue came with fairly simple directions: Fix it. In fact, the IT world may never again face such a clearly defined major problem, with cookbook remedies no less. But building the network system upon which your organization will be reinvented? Now that's a challenge, particularly when the technology and strategic choices before you are so vast and the choices themselves so dynamic in nature.

BILL LABERIS is a consultant in Holliston, Mass., and former editor in chief of *Computerworld*. Contact him at bill@laberis.com.

Forrester Research summed up the challenge neatly in addressing the e-commerce potential in Europe — potential that could reach a stunning $1.6 trillion in four years. Fulfilling that promise won't come easily, Forrester notes, because the region must first "build e-commerce networks to help overcome social fears and resistance to change."

In recent conferences and forums I've attended, experts have been focusing their remarks regarding online business infrastructure in a surprisingly narrow band of observations, despite the relative complexity of the technical and strategic IT issues involved. Here's a mix of their observations with my interpretation of the issues:

We've barely begun. Very few e-commerce systems have been built to date. Instead, by using the high-tech equivalent of spit and baling wire, IT architects have retrofitted legacy systems to accommodate applications they were never built to handle. The common thread of these projects is the desire to increase systems access and openness to customers and suppliers. Legacy systems, in comparison, were built to keep people out, not to invite them in.

You must build better Web sites. All the experts I've heard contend that Web sites today largely ignore customer goals and fall far short of meeting the essential requirements of a good user experience. The problem is that many people think a well-designed Web site (i.e., it's pretty, you can get around quickly, etc.) should be regarded more like a storefront window design, which is anything but mission-critical.

For example, consider that buyers returned about 10% of all gifts bought online during the December holiday season, which is double the rate of returns of gifts bought at stores. That's not an insignificant statistic. Many consumers found the online returns process cumbersome compared with going back to an actual store.

Going forward, how many — if any — retail sites will think about modifying their sites to make it easier for the customer to make returns and possibly cheaper for the retailer to process? Something as simple as a downloadable return label or a return tracking system would be a good start, or possibly the ability to make in-store returns of items bought online, as a few online vendors now offer.

Seen in this light, e-retailing is a hybrid of merchandising and marketing that's flexible and intelligent enough to anticipate customer needs based upon the most recent customer experiences.

Build better back offices. Not only are legacy systems not built for e-commerce applications, but the all-important systems management tools that enable you to control legacy systems won't work in the dynamic, intranet/extranet-oriented e-commerce environment. Simply put, they were optimized for a more static, controlled-access environment. Some observers feel that e-commerce-specific management tools won't be available for three or four years. But they're absolutely key to building a back office that not only supports the transaction-oriented front end but can be controlled and managed, just like today's legacy systems. ▶

READERS' LETTERS

Let Microsoft's punishment fit crime

THE Justice Department and the 19 states involved in the Microsoft antitrust case are reported to favor breaking up the company. That punishment doesn't fit the crime. I have a better idea.

Microsoft claims that it was acting to its customers' benefit when it integrated browser functions tightly into Windows 98. Let's consider *other* features of Microsoft products that would greatly benefit customers, were they to be tightly integrated.

In Project, Access, Word and Excel, the process for copying cells and the functionality available are totally different. Suitable punishment: make every table view in every Office product *perfectly* consistent.

And Microsoft should be forced to fix *every* bug in *every* product, running on *every* platform.

These punishments should eat up the billions in cash reserves on which Microsoft is sitting. (Is it possible that it accrued these reserves by releasing software known to be inconsistent and defective?)
Louis B. Clark
Partner
Business Performance Management
Melrose, Mass.
LouisClark@aol.com

More to mainframes than you think

SOMEONE better let technical recruiter Larry Johnson ["Mixed Reviews for the Mainframe Market," Technology, Jan. 24] in on a little secret: EAI, or Enterprise Application Integration. Heck, I'm writing Java servlets right now to run under Websphere on OS/390 talking to a TCP/IP-enabled CICS TS region.

I think Johnson is stuck in that 20th-century "get off the mainframe" mind-set. If you think the mainframe is nothing but green screens and Cobol,

maybe you had better quit talking and start listening.
Jim Moore
President
Concentrated Logic Inc.
Glendale Heights, Ill.

TCP/IP facts amiss

IJUST READ "TCP/IP" [Technology, Jan. 17] in your otherwise excellent magazine.

It's NetBIOS — the application-level protocol — and not NetBEUI that runs over TCP/IP. Even worse, the example given shows IPv6 addresses to be 48 bits in length when they are actually 128 bits!
John Howie
Computer consultant
Co-Active Inc.
West Hollywood, Calif.
JHowie@msn.com

Long live the résumé

IN "DEMISE of the HTML Résumé" [Business Careers, Jan. 24], Steve Alexander reports that recruiters prefer applicants to fill out profiles, rather than send résumés. Of course they do. It's much easier to have a candidate do your database work for you.

For applicants, profiles are a waste of time. To fill one out competently takes two or three hours.

Yes, profiles are easier for recruiters to search. They also make it easier for recruiters to reformat and present my credentials to potential clients in ways I didn't intend.

If recruiters want profiles, they need to make it easy. They need to make it portable. One standard format. Easy to input, read and search. Wait, we have that. It's called a résumé.
Cheryl Ploegstra
Anchorage, Alaska
More letters, page 35

COMPUTERWORLD welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. Internet: letters@computerworld.com. Include an address and phone number for immediate verification.

JOHN GANTZ

ASPs can help remove some of complexity's stress

THE APPLICATION service provider market won't go away. There are probably more vendors than customers by now, and new vendors join the fray every day, with Novell being one of the latest [News, Jan. 17].

What gives? Why so many pretenders to a throne still under construction?

Even if the market reaches the $10 billion in 2004 that my IDC colleague Clare Gillen thinks it will, that's a lot smaller than either the general outsourcing or Web hosting markets, both cousins to the ASP space.

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The answer is complex, but it ties in with a major change under way in the delivery of computing systems to customers like you.

Years ago, your vendor provided your entire systems for you. IBM or Digital would sell you the hardware, operating software, applications software and installation and service in a single contract (sort of). With the rise of free-standing operating systems, third-party databases and client/server computing, the burden was put on users to assemble their own systems or to work with resellers and integrators. Most recently, we've seen loose confederations of business "partners" — hardware and software vendors doing joint marketing — attempting to bring solutions" to market. But these ecosystems are fragile.

The ASP takes it one step further, offering a tested suite of hardware, software, networks and services ready for use.

There's something in the ASP model for everyone: a concentration of buying power for hardware vendors, a channel to small and midsize companies for software vendors, value-added services for Internet service providers and simplified purchasing for users. It's a business model that seems to make sense today. ASP-delivered systems are the first step toward the real vision of delivering Internet-age systems to users over the Internet from ad hoc service components put together on the fly.

What should you do about this new category? Well, for one, you could consider going to work for one. Market growth will be quick, rising from practically nothing to more than $6 billion world-wide by 2004. Also, consider doing business with one, particularly if you work for a fast-growing company or have a division that would make a good pilot.

In either case, remember that no ASP is really a single company, despite what's written in any contract you sign. You'll have to perform some due diligence on the partnerships behind the ASP to make sure all the pieces fit and that each partner is working off some core competency.

For example, consider the prospect of Novell as an ASP. The company should be able to do a great job administering and delivering software and managing network access, but what does Novell really know about running, for example, human resources applications?

But ASPs are worth considering. This Internet stuff isn't going to get any less complex, mergers and acquisitions aren't going to decline and fast development cycles aren't going to go away. Maybe an ASP can help you deal with the stress of it all. ▶

SIMSON L. GARFINKEL

Three Unixlike systems may be better than Linux

BEFORE YOU deploy Linux within your organization, you should look beyond the hype and consider other Unixlike operating systems. Like Linux, these systems can be deployed without paying licensing fees. And like Linux, they are open source. But in many cases, these other Unixlike systems deliver better performance, more security and other features that today's Linux offerings still can't touch.

These other Unix systems are descended from Berkeley Software Distribution and were originally developed by the University of California at Berkeley's Computer Science Research Group. The three systems — FreeBSD, NetBSD and OpenBSD — have strong followings among Unix insiders for

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their performance, reliability and security.

To be fair, the differences between the BSD systems and Linux are minor compared with the differences between these systems and Windows NT. All of the Unix systems use the same graphical user interface based on the X Windows System. They all have the ability to share files and printers to Windows 95/98/NT desktops using the Samba remote file system. They can all run the Apache Web server. And they all come with the free GNU C Compiler and development environment.

But there are significant differences between Linux and the BSDs. The differences result from philosophy and the mix of individuals working on the different distributions.

For years, the Linux developer community was a rowdy bunch of hackers who were interested in just putting together a Unixlike operating system that they could freely distribute. Development was fast and furious — sometimes a little too much so. The frenzy produced great diversity, a number of different Linux versions, some incompatible changes with other Unix systems and more than a few security bugs.

The BSD developers have had different motivations. The NetBSD group (www.netbsd.org) has concentrated on making its system run on as many different platforms as Linux; today it runs on more than twice as many architectures. NetBSD is also the only free Unix operating system that comes with support for the next-generation Internet Protocol, IPv6.

FreeBSD (www.freebsd.org) was developed by a NetBSD group that splintered largely over management issues. Today, the FreeBSD developers strive to make their operating system as fast and reliable, but they stick largely to Intel-based hardware. Like Linux, FreeBSD supports symmetric multiprocessing (the ability to run on computers with multiple CPUs), but it also has automatic memory allocation, diverting to programs or the disk cache as necessary. FreeBSD also has a very easy-to-use installation and configuration system.

OpenBSD (www.openbsd.org), despite its name, was designed to be the most secure Unixlike system. More than a dozen people in the OpenBSD group have spent several years auditing the operating system's source code, correcting bugs like potential stack-overflows and buffer overruns. OpenBSD is also Unix that comes with 128-bit cryptography built-in, skirting U.S. export restrictions because it's distributed from Canada.

One common, yet interesting feature in all the BSDs is that they can run software compiled for Linux as well as one another. This lets you choose an operating system based on its strengths rather than on which applications it happens to support.

I know of several Internet service providers that use FreeBSD on their Web server farms. Others have set up old 486s or low-end Pentiums running NetBSD or OpenBSD as low-cost routers and virtual private network boxes.

If you have a traditional Microsoft-based environment and you're making your first foray into free operating systems, go with the more established Linux brand. You can buy it preinstalled on a variety of systems, you can get service contracts for around-the-clock support and if you ever get static from senior management you can always refer them to Red Hat's stock price.

But if you're trying to get the most for your money or if you want a higher level of security, take a look at the BSDs. The rewards can be considerable. ▶

READERS' LETTERS

More boot camp tales

DEBORAH RADCLIFF asks in her article "Tales From Boot Camp" [Business Careers, Jan. 24], "Could you imagine courses like . . . 'HTML on the Spot'?"

I taught basic HTML in one and a half days to more than 100 Complete Business Solutions Inc. (CBSI) consultants through the Schaumburg, Ill., office, and many were able to develop reasonable Web sites during the test. If they easily passed the test, they could be placed on a client account.

But some of the boot camps are much too short. For instance, CBSI gives a four-day C class and a two-week Java class in which most attendees learn little to nothing.
Karen Mermel
Salem Support Systems
Hanover Park, Ill.

YOU make the statement "None of [the boot camps] are molding nontechs into techs." Our program, geared toward molding nontechs into programmers over a 10-week period, does in fact turn nontechs into techs.

Since we began our IT Career Fast Track program a year ago, 53 people have graduated from our public Visual Basic, C++ and Java Fast Tracks, and 80% of the graduates have been successfully placed as programmers. Additionally, we have run private versions of the same program for several companies. In virtually each case, the graduates were nontechs able to pass a standard programming aptitude test at a high level.
Don Weiss
President
Step 1 Inc.
Overland Park, Kan.
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UNFORTUNATELY, most of these boot camps seem to be oriented toward the hot concepts of the past 10 years.

What will be hot during the next 10 years? People need to be learning those things now, not three years from now.
Steve Hovland
San Francisco
74270.765@compuserve.com

TALES FROM BOOT

Reality check on Gates' contributions to IT

I RECENTLY READ in these pages that Bill Gates will yield his position as CEO to focus on innovation. With Gates' excellent record for innovation, and his relative youth, I am really looking forward to his future work. A brief review of his groundbreaking ideas from the past:
■ Basic (inspiration: Basic)
■ MS-DOS (inspiration: QDOS, CP/M)
■ Word (inspiration: WordPerfect)
■ Excel (inspiration: Lotus 1-2-3, Visicalc)
■ Windows (inspiration: Macintosh)
■ PowerPoint (inspiration: Aldus Persuasion)
■ Access (inspiration: dBase III)
■ Windows NT (inspiration: VMS and Unix)
■ Internet Explorer (inspiration: Mosaic, Navigator)
■ MSN (inspiration: AOL)
■ MSNBC (inspiration: CNN)
■ Palm-size computers (inspiration: PalmPilot)
■ Natural Keyboard (inspiration: Apple Adjustable Keyboard)
■ Optical mouse (inspiration: optical mice)

Gee, in a world seething with ideas, it's only fair to afford The Great Philanthropist more time to copy them for the benefit of the toiling masses.
Murli Nagasundaram
Associate professor, computer information systems
College of Business
Boise State University
Boise, Idaho

C'MON, Michael Cusumano! Bill Gates, "the technology guru" ["Gates-Ballmer Shuffle Is a Boost for Microsoft," News Opinion, Jan. 31]? Have you been reading too many Microsoft press releases and hearing too many well-crafted speeches by Bill?

Gates is one of the shrewdest businessmen ever, approaching any and all business relations with the coldness and single-mindedness of a hungry python. But technology guru? Remember that on Gates' watch, Microsoft products have contributed to the computer lexicon phrases like "blue screen of death," "DLL hell," "Plug and Pray" and "the Windows Registry is corrupted." These phrases are indicative of the shoddy and unreliable behavior of Microsoft products, something a genuine technology guru would not accept.
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Great Workstyles articles

I LOVE the "What It's Like to Work at . . ." articles. They remind me of Vault-reports.com, but they're a bit more comprehensive and easier to read. I receive your weekly e-mail on careers and enjoy it. Keep them coming!
Richard J. Liscinsky
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Flashback was a winner

I THOROUGHLY enjoyed the weekly Technology Flashback series last year! Bravo!
Joan Rayford
Software process manager
Innovision Technologies Inc.
Livonia, Mich.

Some Y2K afterthoughts

PLEASE! Y2K has come and gone with nothing but a whisper of problems. Civilization did not end, and we have not returned to the cave as was predicted by so many pundits.

Peter de Jager, William Ulrich and their ilk have had their 15 minutes of fame and rolled in huge consulting and speaking fees.

Isn't it time you pulled the plug on these guys? I've had enough of this Chicken Little stuff to last a lifetime.
Geoff Wascher
Utica, Mich.

IN "Opinion: Insidious Glitches Are Real Y2K Concern" [Computerworld Online, Jan. 5], William Ulrich writes, "we compared the year 2000 scenario to an old Chinese proverb termed 'death by a thousand tiny cuts.'"

Yeah, right. The big Y2K nonstory is over, folks. Those of you who promoted fear were wrong, but you hate to be wrong. You hate not being able to derive further income from your ill-advised prognostications. I have one word for all of you: Shhhh!
Mark Yannone
Perfect Dat
Phoenix

THE K in Y2K does not stand for 1,000 ["Ban Ugly Language Shortcuts 4ever," Jargon Judge, Jan. 17]. K represents two things.

In the science world, it represents degrees Kelvin. Thus, Y2K could mean "the year the temperature dropped to 2 degrees Kelvin or -271.15 C or -456.07 F." In the computer world, K represents two raised to the power of 10, or 1,024. Thus, Y2K would mean "the year 2048," which won't be here for quite a while.

To accurately represent 1,000, a lowercase k is used, and year 2000 becomes Y2k. Several technical Web sites correctly spell the acronym for year 2000. One example is the North American Electric Reliability Council at www.nerc.com/-y2k/y2k.html.

So how did Y2K incorrectly get into common usage? I checked with my public relations department, which informed me that because The Associated Press initially listed it incorrectly and the press conforms to AP standards, the rest of the media were forthwith doomed.
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Clarification about CSS

DECSS can be used to decrypt content, such as movies, on DVDs protected by an encryption system called CSS (content scrambling system), which is used to prevent illegal copying of DVDs ["Film Studios File Suit Against Accused DVD Hackers," Computerworld Online, Jan. 17]. But CSS does not prevent copying. Anyone with the right equipment can make a bit-for-bit copy of a DVD, with CSS intact, and sell it. It's the DVD-writing equipment that makes this cost-prohibitive at the moment. With the current pricing policies on DVDs, this just isn't profitable. If the movie houses change the pricing policy so that first releases are priced up near VHS, in the range of $100, then pirates might be able to make a buck by selling them cheap.

The CSS encryption is purely to control who can watch the movie. As far as the movie houses were concerned, you had to pay them to get a license to decode the movie.

Please, in future articles on this matter, don't continue to support the movie houses' case by claiming that this is an issue of piracy protection. It's a matter of controlling consumers' viewing habits, much like DiVX was, and we all know where that went.
Michael O'Keefe
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The Internet has changed the way business gets done. For example, there's a lot more talking about the Internet than business getting done.

It's time companies use the Internet and not just discuss it.

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BUSINESS

SERVICE PROVIDERS

Service provider choices are almost as numerous as Web sites. Picking the right one depends on whether you need full-service application support or simple point products. Experts recommend studying the business model behind the software first. ▸ **40**

CHINA RELATIONS

E-commerce technology infrastructures in China are similar to those in the U.S., but China would like to emulate the U.S.'s customer-focused approach. A delegation of 31 Shanghai-based CIOs spent two weeks here last month to examine how businesses and government agencies are applying technology and e-commerce to their organizations. ▸ **42**

TURNOVER FIGHT

USWeb, an Internet services firm, found itself with increased revenue but also a higher turnover rate. The company details how it will combat turnover by increasing training and employee input. ▸ **44**

USE-AS-NEEDED APPLICATIONS

Microsoft's plans to offer use-as-needed applications copies application service provider offerings that have started popping up and would amount to one of the largest instances of outsourcing in history. Paul A. Strassmann says there are a lot of good

points to the model, but he warns that IT managers will have to evaluate it carefully or it could result in electronic bondage. ▸ **46**

ERP CAREERS

To get a career in enterprise resource planning, general skills won't cut it — you need skills in an ERP package. Formal training is something you should seek if you want to head down this path, experts advise. See QuickStudy. ▸ **50**

Y2K REWARDS

Having made it through the turn of the century, year 2000 project managers are left to ponder if it was worth the time and money. The answer: Yes. Y2K projects allowed organizations to improve their project management, asset management and business processes. ▸ **52**

INTERNET LOSSES

A Harvard law professor's new book warns that the Internet is losing its independence to commercial interests, which may invite the regulation of cyberspace. Lawrence Lessig, author of *Code and Other Laws of Cyberspace*, shares his views with *Computerworld*'s Gary Anthes. ▸ **54**

MAKE BETTER DEALS

If you're trying to do better deals with your suppliers, Joe Auer recommends making a bidders' conference part of your procurement process. ▸ **56**

CAROL FAWCETT says experience with an ERP implementation is "priceless"

OUTLOOK FOR CAREERS IN ERP

CAROL FAWCETT, director of applications at Western Digital, describes ERP as the "meat and potatoes" of an organization. And if you want to be successful in an ERP position, she says, you'd better have the right skills. Fawcett and two other IT professionals talk about their need for ERP talent, how they find good people and why working on ERP projects is a good career move.

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Service Providers Give Users More IT Options

Business models vary, but reliance on IT outsourcing is becoming common

BY MARK HALL

SERVICE PROVIDERS are proliferating like microbreweries, offering many tempting flavors. But before you slake your thirst on the perfect online application at the surprisingly low lease price, analysts and even service providers themselves suggest you look closely at the business behind the software.

First, there's the nomenclature of service providers (SP). There are the tried-and-true Internet service providers, the network access companies. Next best known are application service providers (ASP), which offer packaged software to lease online. Then there are business service providers (BSP), which rent only their own proprietary applications. And wholesale service providers (WSP) are a new category that bundles a selection of BSP products.

Each SP category has a different business model for its technology. You should look

Questions To Ask SPs

Analysts warn that companies should look closely at a service provider before they sign on the dotted line. They suggest that you get answers to the following questions first:

■ **Licensing:** Who pays for per-user and per-server licensing?

■ **Upgrades:** Who decides when to upgrade? Who pays for it?

■ **Customization:** How much do you need? Can the service provider handle it?

■ **Security:** What kind of security does the service provider offer? Would it meet your internal IT standards?

■ **Scalability:** Can the service provider's software, infrastructure and support staff handle your growth?

carefully at these models before signing up, said Albert Nekimken, an analyst at Input in Vienna, Va. Nekimken said small and midsize businesses make up the initial target market for ASPs such as USinternetworking Inc. in Annapolis, Md., with its "greenfield operations in two data centers with no legacy hardware."

Less Investment

The reason small and midsize businesses would be attracted to ASPs is obvious: They get a breadth of applications to choose from without having to invest in either the staffing or infrastructure to support them. Analysts also see information technology departments adding BSPs to their outsourcing options to quickly fill departmental needs for point products such as special travel and expense reports.

Lew Hollerbach, an analyst at Aberdeen Group Inc. in Boston, said ASPs and BSPs are becoming critical for small and midsize business strategies and even important to augment large IT operations. "For a lot of companies, service providers are becoming the new IT," he said.

Among start-ups, especially those funded by venture capitalists, ASPs and BSPs are increasingly the de facto IT department.

Venture capitalists "don't want to see business plans that include IT staffs," said John Marchese, director of business development at Citrix Systems Inc. in Fort Lauderdale, Fla. He said venture capitalists believe an SP can lower start-up costs and contribute to a more predictable cash flow.

"The compelling argument to leverage service providers is so strong," Marchese said.

Even start-up providers feel compelled to use SPs. BitLocker Inc. in Palo Alto, Calif., considered hosting its software in

its own data center, but the economics were daunting. So BitLocker uses the network infrastructure provided by Exodus Inc. in San Jose to host Sun Microsystems Inc. servers that run its application.

And even though it doesn't own the Exodus network, BitLocker was able to stress-test it by using a product from yet another SP, Mercury Interactive Corp. in Sunnyvale, Calif. BitLocker customer service director Deanna Falcon said that when BitLocker was preparing

for its launch last month, employees using Mercury's LoadRunner product discovered that Exodus wasn't delivering enough bandwidth and her application's performance was tanking.

Once the bottleneck was uncovered and the SP corrected the problem, Falcon's data center was ready for what she hoped was a deluge of interest in her company's offer of a free online database to small businesses around the globe.

Hollerbach said he sees "a shift in IT dollars to service providers" for point solutions such as travel and expense reports or time cards. "It's an easy way [for IT] to stick [its] toes in the water," he said.

At WL Gore & Associates Inc. in Elkton, Md., the business development area has ventured into shallow waters

with a pilot program using a Web-only contact database from Salesforce.com in San Francisco.

The department's 20-person global sales force had previously used contact-management software on laptops, according to Bob Muscat, an associate at WL Gore. "There was a cumbersome process for synchronizing field data to the home office," said Muscat.

Because Salesforce.com is Web based, employees can access their personal contact

data from anywhere in the world to update or add information, and the Solaris servers run by Salesforce.com immediately refresh the information.

Simple Launch

Muscat said he also liked the fact that there was no learning curve for users and that it took only two days to launch the system. "And the price is pretty attractive, too," he said. Had he gone to WL Gore's IT department for something similar, it could have taken up to a year to deploy and would have had far greater up-front costs.

While Muscat chose Salesforce.com on his own, Janet Lecuyer, vice president of electronic brokerage at Charles Schwab & Co. in San Francisco, worked with her company's IT department and DigitalThink Inc., a BSP also in San Francis-

co, to deploy The Learning Center, an investor education service, on Schwab's Web site.

Although DigitalThink hosts the content of the Learning Center on its own server farm, Lecuyer said Schwab's IT department had to sign off on project details and implementation because access is via the main Schwab site. The Learning Center went live with three complete courses in December after six months of development.

"Our IT could have done it," she said, "but it would not have been a priority."

Analysts disagree on which SP type is most appropriate for either midsize businesses or even larger corporate IT departments. Input's Nekimken said the issue is whether "best of breed" point products will

be as interesting to the primary market, which will embrace all-in-one application integrators. "If you can provide 70% to 80% of what a company needs, it's much more appealing," he said.

Aberdeen's Hollerbach said integrating online applications will add enormous expense to SPs, undermining their biggest advantages of low cost and quick deployment.

Judith Hurwitz, CEO of Hurwitz Group Inc. in Framingham, Mass., said it's a matter of core competency. "Is your business your software or your infrastructure?" If WSPs package a selection of applications for vertical markets, she said, a middle ground could be found.

As for whether ASPs and BSPs are a long- or short-term phenomenon, Hollerbach said, "the jury is still out." ▶

Service Provider Glossary

ACRONYM	DEFINITION	DESCRIPTION
ASP	Application service provider	An online channel for packaged software. Applications can vary by ASP but generally focus on high-end applications like databases, enterprise resource planning and customer relationship management.
BSP	Business service provider	An Internet software developer that makes its applications available only via the Web. Generally, the software is specific in function or proprietary.
ISP	Internet service provider	A business that offers Internet access. Some, like AOL, offer it to millions of consumers. Others, like Exodus, offer it to other SPs. Manages network infrastructure.
WSP	Wholesale service provider	A packager of applications for distribution online; not unlike a virtual value-added reseller.

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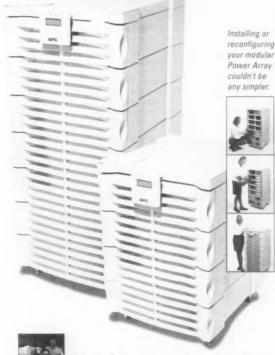
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- **Bob Lesher and Charlie Bise**, Information Technology, Exel Logistics

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Webcasting Suit Might Affect Online Copyrights

Coalition members complain iCraveTV is ignoring their broadcast primacy

BY CHRISTINE McGEEVER

A LEGAL BATTLE waged by Canadian and U.S. moviemakers and television broadcasters recently focused sharp attention on issues of copyright and intellectual property protection on the Internet.

The multiple complaints against Toronto-based webcaster iCraveTV have a lot of major backers: 10 U.S. film studios, three television broadcasters and two sports leagues, as well as a loose consortium of Canadian broadcasters.

The companies are charging that iCraveTV is webcasting U.S. and Canadian television without authorization, thus violating copyright and trademark laws.

Experts said these complaints could help define new copyright laws that better protect intellectual property and authors' rights online.

Blurring the Boundaries

The main problem in the iCraveTV case, according to experts, is that the Web eliminates geographical boundaries that U.S. and Canadian copyright laws take for granted.

Here's an oversimplified example: Say you buy the rights to be the first theater chain to show a film in London, while your competitor has the right to simultaneously show the same film in Toronto. The licenses create a geographical barrier between the competitors so that both have access to the maximum market in those areas.

Without geographic boundaries, copyright rules for all forms of content posted online come into question. That means any business using the Internet as an information technology tool needs to track developments in copyright and trademark law.

The Internet "is a different breed of cat," according to Jack Valenti, president and CEO of the Motion Picture Association of America in Encino, Calif., which filed suit on behalf of 13 film and television plaintiffs against iCraveTV. A Web-based rebroadcaster can't prove it's honoring exclusive rights that another party may have to broadcast the same material in a specific region of the world.

According to Roy Russo, a managing partner at Cohn and Marks, a Washington law firm specializing in media copyrights and licensing, "The iCraveTV case is one of first impression," meaning that there is no wholly applicable precedent and that the case presents an opportunity to make new laws that directly address Internet distribution.

According to North American Broadcasters Association

JACK VALENTI: The Net is "a different breed of cat" in copyright law

General Secretary Bill Roberts, iCraveTV's actions will invite the renewed interest of both the Canadian and U.S. governments to regulate the broadcasting industry. "It's a reckless venture," Roberts said.

Landmark cases and legislation in the '70s and '80s helped sort out important copyright and technology issues such as the right of cable companies to rebroadcast TV programming, paying royalties afterward rather than securing copyright clearances ahead of time.

Court decisions have also confirmed broad First Amendment protections for Web sites but have limited that protection when the material involved was owned by an entity other than the Web site where it was posted.

According to Tony Scapillati, an attorney and executive director of the Canadian Broadcasters Rights Agency Inc. in Ottawa, the motivation for both current and past lawsuits is companies' fears that they could lose control not only of their intellectual property but also of their business models. ▸

Chinese CIOs Take Lessons in E-Commerce

Shanghai IT execs tour, learn strategy

BY THOMAS HOFFMAN
SADDLE BROOK, N.J.

They came from the other side of the world hoping to learn how tech-savvy U.S. organizations are leveraging the Internet to grow or improve their operations.

They left with lessons about how some U.S. companies and government agencies are making e-commerce work for them — and where there's still room for improvement.

Last month, a delegation of 31 CIOs from Shanghai embarked on a two-week tour to learn how U.S. companies are transforming themselves into Internet-based businesses.

What insights did they glean from their visits to Silicon Valley and metropolitan New York? For one thing, electronic-business technology infrastructures in China are remarkably similar to those in the U.S., said Peng Jialiang, CEO of Shanghai Real Estate Information Network Co., a Shanghai-based real estate agency. And as in the U.S., high-tech initial public offerings "are hot" in China, especially those that target consumer markets and retail services, said Peng.

But there are differences. In China, companies and government agencies use "more of a top-down push" to sell products or distribute information online, Peng said.

In contrast, U.S. organizations have created online applications and services that are much more customer-focused, an approach that Peng and other Chinese executives said they would like to adopt.

Unlike U.S. CIOs, who would rarely expect to learn innovative business practices from government agencies, many of the Chinese CIOs said they were impressed with the online business applications at New York City's Department of Information Technology.

The executives were flabbergasted, however, to see just how much paper ends up on the floor of the New York Stock Exchange. Jia Yigang, chief engineer at Shanghai's environmental protection agency, said the trading floor "should be much more automated."

The trip included visits to 3Com Corp. in Santa Clara, Calif.; Apple Computer Inc. in Cupertino, Calif.; Cisco Systems Inc. in San Jose; and Bristol-Myers Squibb Co. in New York. So which company most impressed them? "Cisco," said four of the CIOs in unison. Why? "Their marketing structure is set up very well," said Xu Fei, a research and development manager at Shanghai Information Investment Inc.

Many U.S. CIOs gripe about not having a seat at the board level. But they're leaps and bounds ahead of Chinese CIOs, who are treated much like the back-office data-processing managers of the 1970s and early 1980s, said Richard Mandelbaum, chairman and CEO of AppliedTheory Corp., the New York-based Internet service provider that arranged the U.S. site visits.

The Shanghai executives said they hope the lessons from their U.S. tour will help change

> **We can learn a lot from the dot-com companies and try to develop that type of culture.**
> YANG CHENQU, CIO, SHANGHAI ZHONG

> **[In China], more of a top-down push [is used to sell products].**
> PENG JIALIANG, CEO, SHANGHAI REAL ESTATE INFORMATION NETWORK CO.

that back-office perception. Said Yang Chenqu, CIO at Shanghai Zhong, a business-to-business e-commerce vendor, "We can learn a lot from the dot-com companies and try to develop that type of culture to improve [our businesses]." ▸

USWeb/CKS Revenue Takes Off, but So Do Its Employees

Firm likely to raid Big 5 consulting firms for talent

BY JULEKHA DASH

Internet services firm USWeb Corp. happily reported two weeks ago that its fourth-quarter revenue increased 157% from a year earlier. But the company's senior executives found another number troubling: The employee turnover rate increased from 21% to 24%.

The San Francisco-based Web services firm, widely known as USWeb/CKS since its merger with marketing services company CKS Group, outlined several initiatives to retain and attract new talent this year while it expands its total staff from just under 4,000 people to about 11,000.

USWeb Chief Operating Officer Bob Clarkson said the company will invest more time and effort in training and will give employees more of a say in selecting projects.

USWeb CEO Robert Shaw said the company's pending merger with Whitman-Hart Inc. would help those efforts, partly because Whitman's training program includes an online university. In *Computerworld* surveys, respondents frequently cite good training programs as a reason they would stick with an employer.

Much of the USWeb's hiring effort will focus on recruiting mid- to senior-level executives.

But Lisa Sanders, online recruiting strategist at Hunt Scanlon Corp., a recruiting consultancy in Stamford, Conn., said that while all hiring efforts are difficult in the current job market, finding mid- to senior-level executives will be particularly challenging. She said U.S. demographic data from consultancy McKinsey & Co. suggests that the number of 35- to 44-year-olds will decline by 15% from 2000 to 2015.

So where does USWeb intend to find this talent? Clarkson said one source could be the Big Five accounting and consulting firms, whose employees may find Internet projects at USWeb more rewarding.

"A lot of people in Big Five consulting companies are doing stuff that's not at the center of the world. They would love to do this stuff," Clarkson said.

Moshe Katri, an analyst at SG Cowen Securities Corp. in New York, said it wouldn't be the first time that a small Internet services firm raided Big Five rivals for talent.

Many of these firms are still in the process of adopting a Web-based model in their consulting practices, Katri said. As a result, many of their consultants have left for smaller firms to acquire Web experience.
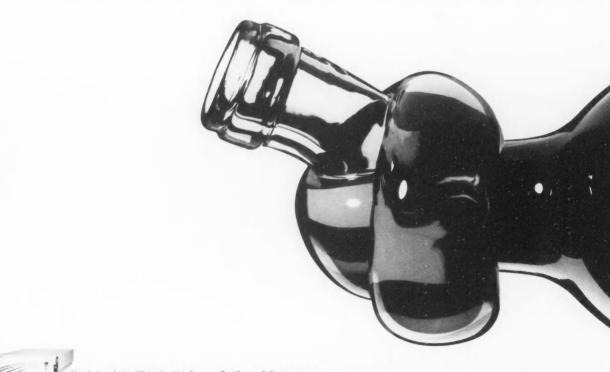
Big Five firms "invested massive amounts of skills and technology in back-office skills" such as enterprise resource planning systems, Katri said. As a result, many were "caught off-guard when everything became more Web-centric." ▶

SNAPSHOT

Top 5 in Net Growth

The fastest-growing Internet properties from September to December 1999, as ranked by individual site hits

PROPERTY	SEPTEMBER	DECEMBER	% GROWTH
eToys	872,183	4,693,226	438.1%
Comet Systems	780,776	4,159,167	432.7%
BizRate	445,406	1,815,476	307.6%
Sears	506,389	1,746,148	244.8%
CBS	1,244,722	4,191,478	236.7%

SOURCE: NEL SEN//NETRATINGS, JANUARY 2000

Here's to a faster Web site: the Compaq TaskSmart C-Series server.

BUSINESS

EXECUTIVE TRACK

David H. Annis has been named group senior vice president of information technology at The Hartford Financial Services Group Inc. in Hartford, Conn. He succeeds John T. Crawford. Prior to the appointment, Annis was senior vice president of IT at the company.

Bruce Ash has been named vice president of information services, and **Louis Jordan** was named senior director of IT at Dollar General Corp. in Nashville, a national retail chain with 3,998 stores in 24 states. Prior to the appointment, Ash was senior vice president of systems at The Talbots Inc. in Hingham, Mass. Jordan was previously vice president of IT at United Methodist Publishing House.

Donald A. Buskard has been named senior vice president of IT and chief technology officer at **AXA** Financial Inc. in New York, a leading diversified financial services organization. Buskard was general manager and deputy information services director at AXA Sun Life Insurance in Bristol, England.

Karlin Sue Bohnert has been appointed vice president of process and technology analysis at Limited Technology Services in Columbus, Ohio, a division of The Limited Inc. Bohnert, who has more than 30 years' experience in IT, was most recently assistant vice president at Nationwide Insurance Enterprise. Also, **Robb Seybold** has been named vice president and CIO at The Limited Too, the online merchandising and Web site division of the company.

Tim Byers was recently named CIO at Shell Energy Services, an affiliate of Shell Oil Co. in Houston. Prior to this appointment, Byers was CIO at SWEPI, Shell Oil's onshore production and exploration subsidiary.

George A. Brenner was recently named vice president and CIO at home builder Kaufman and Broad Home Corp. in Los Angeles. Brenner joined Kaufman and Broad Home from Candle Corp. in Santa Monica, Calif., where he led the company's electronic-business applications services unit.

Raymond S. Causey has been named vice president and CIO at Mail Boxes Etc. in San Diego. Mail Boxes Etc. is a subsidiary of U.S. Office Products Co. in Washington, the leading franchisor of retail business communication and postal service centers. Causey was vice president and CIO at North American Trust Co. in San Diego.

Kent Fourman has been promoted to vice president and CIO at Gaylord Entertainment Co. in Nashville, which operates attractions and cable networks. Fourman was previously director of IT at Gaylord Entertainment.

Noah Mercer, former director of strategic technology at NYTimes.com, the online companion to *The New York Times*, has been named CTO at eFrenzy Inc., a San Francisco-based online marketplace for buyers and sellers of services.
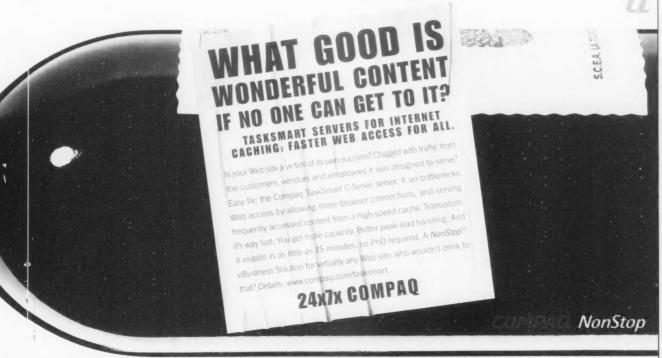
James McCullough has been named senior technology and information officer at eCompanyStore.com in Atlanta, a business-to-business online market maker for logo merchandise. McCullough was formerly president of Executive Technology Services Inc., a consulting firm in Fayetteville, Ga.

Zachary Patterson has joined The American Cancer Society in Atlanta as CIO. Prior to the appointment, Patterson was CIO and commander of a U.S. Army Strategic Signal Brigade for the Military District of Washington.

Liane Wilson has been named vice chairman for corporate technology at Seattle-based Washington Mutual Inc. Wilson will be responsible for all information systems, architecture service and alternative delivery technology. Prior to the appointment, she served as executive vice president of corporate communications. She was also senior vice president of information systems.

BUSINESSOPINION

WORKSTYLES

What It's Like to Work at … JCrew.com

Interviewee: Sundar Rajan, director of Web development
Company: JCrew.com
Main location: New York's Greenwich Village
Tenure: About 20 months
Number of information technology employees: JCrew.com has five IT staffers plus about 10 contractors who do application development and database administration. JCrew IT, which provides infrastructure support for the Web site, has 40 to 50 people in New York and about 50 in Lynchburg, Va.
Will you be expanding the dot-com staff? "Yes, we'll get at least another four to five people in the short term and more later on."
What do you look for in new employees? "E-commerce ex-

perience or Internet applications development first. Then you should have a strong IT background. At the junior level, I look more for exposure to new things. I don't look for fashion industry experience; I'm more interested in technical skills."
Dress code: Business casual. "Mostly we wear J. Crew stuff. On Fridays, we dress down in jeans and T-shirts."
Workday: "It starts at 8:30 or 9 a.m., and we usually end up working to 7 or 8 p.m. But we can work from home – there are no hard-and-fast rules. I have a secure ISDN line at home that the company pays for."
How is working in the Web group different from straight IT? "It's less personal. You don't know your user groups. And there's a lot more traffic. The site has to be scalable to support several thousand people at one time, and you have to plan for big growth every year."
Major initiatives: "Migrating the architecture of the site from an older [IBM Color Graphics Adapter]-based architecture to a newer Java-based architecture [completed in October]. We plan to personalize the site more to give customers a more

personal shopping experience. For example, based on your past buying behavior, we could show you different promotions and new items that might interest you more."
Training in 1999: "External training in Java, Oracle databases and some of the tools we use."
Types of offices: "It's all open space – there are no private offices. It's a very casual, open environment."
What do you see on people's desks? Fashion magazines, technical magazines, books on using new-media tools.
Must people carry beepers or cell phones? "Yes, we all have beepers, and some of us have cell phones. . . . I'm called away from my personal life about 10 times a week. It depends on the season."
Percentage of staff that telecommutes on a given day: "Generally, we all come to the office, but on Fridays, one or two people may work from home."
In-house cafeteria or other food service? No. "There's so many take-out places around here, we just call for a delivery."
The one thing everyone complains about: "That there are so many changes; that we're always moving so fast."
Little perks: "Thirty-percent employee discounts; flexible hours; creative, exciting work; learning the latest technologies in new media and e-commerce."
What do you like most about the job? "The excitement, getting to use the latest and greatest."
What do you like the least? "The long hours."
How's the compensation relative to the hours? "It's good. . . . I have no complaints."
Last companywide/department perk: A Christmas lunch; a relaunch lunch in October.
Would employees feel comfortable e-mailing the CEO? "Yes, sure."
Quote: "It's long hours and a lot of work, but it has been real exciting. We have various initiatives going forward, so the future looks good." – *Leslie Goff*

PAUL A. STRASSMANN

The Microsoft shift

RECENTLY, MICROSOFT'S TOP EXECUTIVES disclosed that the company will embark on a new business model: shifting from selling shrink-wrapped software to offering applications on a use-as-needed basis. The move copies application service provider offerings that have sprouted up all over the Web. Under this model, Microsoft would no longer depend exclusively on sales of licenses but would instead draw addition-

al income from the delivery of applications and support over networks to produce a more predictable stream of cash. Bill Gates' notion of a megaserver-centered architecture confirms that such a service strategy has been in the works for some time. In the opinion of a leading financial analyst who follows Microsoft closely, "They would eventually like to get a cut every time their software is used." I predicted this would happen in my Oct. 13, 1997, column.

This would amount to one of the largest instances of outsourcing in history. Microsoft's 1998 revenue of $10.5 billion from Windows and desktop applications would be augmented with a hefty share of customers' spending on desktop support — a market that I estimate to be worth at least $200 billion (100 million global desktops multiplied by $2,000 in displaceable support costs per desktop). As I see it, this could raise Microsoft's revenue beyond anything it can potentially earn from software sales. Profits from real-time desktop support could propel its market capitalization beyond $1 trillion. Microsoft would evolve from being a seller of capital assets to the world's dominant information-services vendor.

Microsoft's largest impediment is executing this strategy without monitoring every keystroke on every desktop, while retaining its stranglehold on the desktop. This helps explain why Microsoft is insisting on tight integration of a proprietary browser and programming protocols with its operating systems: It's central to its ability to pursue the rental-services option. That Microsoft is pursuing this tactic is evident from several other clues, including an elaborate scheme for tracking the configuration of what its customers have installed on their machines. I suspect that some of the best brains in Redmond are spending much time trying to figure out whether the entire concept can be executed given legal, privacy and security considerations.

From Microsoft's standpoint, selling services instead of one-time licensing is of vital importance. Currently, it derives 79% of its revenue — and by far, most of its profits — from the sale of Windows and desktop applications. As resistance builds to paying additional license fees for unceasing upgrades, the existing Microsoft economic model is becoming increasingly vulnerable.

There may be some good news in these pricing shifts. A customer's relationship with a vendor that sells a product outright without warranties is at best tenuous. When a customer purchases an item, most of the risks of the total cost of ownership are unloaded from the vendor to the customer. Usage contracts will motivate suppliers to offer higher quality, improved availability and superior reliability, because every improvement should decrease their costs and increase profits.

Usage contracts are also a good deal from the customer's standpoint. They offer cost predictability, automatic technology refreshment and relief from the complexities that are becoming unmanageable for just about everyone.

Technologically complex solutions will increasingly be rented and outsourced instead of being owned. This is true in other technology marketplaces: Witness GE and Boeing's recent $20 billion deal, in which Boeing aircraft with GE engines will be provided to airlines for a fixed operating cost, instead of being sold outright. Networked computers are ideally set up to follow this model. IT managers will have to carefully examine this option and discover whether this initially attractive service may pave the road to a new form of electronic bondage. ❱

> *The existing Microsoft economic model is becoming increasingly vulnerable.*

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ALSO IN THIS ISSUE
"Career Opportunities
With Enterprise
Resource Planning"
See QuickStudy, page 50

IN THE FEB. 14 ISSUE
"ERP's Promised Lands"
As companies expand their ERP
efforts to new units, systems
and global markets, they need
IT pros who combine experi-
ence, Web skills and industry
knowledge to guide them.

IN THE FEB. 21 ISSUE
"ERP Attitude Adjustments"
Early ERP implementations have
proved to be costly and time-
consuming. Companies are now
trying to integrate ERP software
with other systems, creating new
staffing challenges.

WESTERN DIGITAL CORP.'S
Carol Fawcett says that
when it comes to working
with ERP, "the experi-
ence is priceless"

ALAN LEVENSON

With Y2K projects now behind us, experience with enterprise resource planning promises rich rewards in personal development, career growth and compensation. By Julekha Dash

NOW THAT Y2K PROJECTS have ended, information technology hiring managers are seeing a real shortage of talent that can handle enterprise resource planning (ERP) systems.

"ERP skills are so scarce. Hiring and retaining people is a tough job," says Ramesh Kapoor, director of information systems for the City of Norfolk in Virginia. "The area [of ERP software skills] is so specialized. There just aren't many people in it," he says.

One other reason for such hiring woes is that many IT professionals with ERP skills are being lured to higher-paying consulting assignments. But companies can't rely on consultants alone, because when they leave, they take treasured knowledge of the companies' ERP systems with them.

Companies use ERP systems to identify and plan enterprisewide requirements for fulfilling customer orders and to automate business processes in areas such as manufacturing, payroll, financials and human

resources. Carol Fawcett, director of applications at Western Digital Corp., a manufacturer of storage equipment in Irvine, Calif., describes ERP as the "meat and potatoes" of an organization.

"Because these applications take a higher amount of maintenance, you'd better have the right skill sets," she says.

Demand for ERP systems and talent may have dwindled last year as a result of the resource requirements of year 2000 projects, but industry professionals say this year will be a different story. Bill Marshall, director of project management standards at Brampton, Ontario-based Nortel Networks Corp., says he believes there will be a "resurgence of sales and implementation" of ERP systems.

Below, these three IT professionals discuss their needs for ERP talent, how they acquire it and why taking on an ERP project is a good career move.

CW: What ERP systems have you installed?
FAWCETT: We implemented the entire Oracle ERP suite, except Human Resources, two years ago this

ERP payoffs

[past] November. We've installed Version 10.7 on the client side and 16.01 on the application side.

MARSHALL: We've implemented Baan Manufacturing in 17 sites, some with Version 4.0b, some [with] 3.0. We're in the middle of implementing Logistics and Purchasing and plan to eventually implement Baan Projects, though no time frame has been set yet.

KAPOOR: We implemented PeopleSoft Human Resources, Payroll and Basic Benefits in 1997. We purchased Time and Labor but have not implemented it. We don't know yet if we have people [with] the technical and functional skills specific to this module.

CW: How do you acquire ERP talent, and what skills do you need now?

FAWCETT: We brought a series of consulting firms to help with implementation, including Sequent, Oracle, PricewaterhouseCoopers and some boutique software firms. We always need skill sets surrounding electronic commerce. We need folks who have a business background in the Web as well as transactional systems — someone who doesn't just know HTML or Oracle but who can tie these things together. We plan to cross-train people in e-commerce and ERP because it helps both sides understand where data is coming from and where it's going.

MARSHALL: We need people who are trained in how to operate the applications. We may need to hire people who are subject-matter experts [in logistics and purchasing, for example, and] are trained in how to operate the applications. We'll either train in-house people [with vendor-sponsored courses] or hire consultants. A lot of [our ERP talent are] recent graduates who were computer science majors.

KAPOOR: The cost of hiring consultants is so high

that I would rather train my in-house staff. Even if some of them move on to other projects, the knowledge will always be useful. We had a team of five internal people and four consultants working on our recent upgrade to PeopleSoft 7.5. The staff was trained with PeopleSoft courses, but [the courses] are hard to get into.

CW: Why should an IT professional aspire to work on a development team implementing ERP software?

FAWCETT: The experience is priceless. It teaches you not only the application but also how the business uses the application. It's [employees] who have the functional and technical skills that are the most valuable. It also results in a 25% to 30% pay increase.

MARSHALL: Understanding your position in the supply chain is very rewarding professionally. ERP resources are in high demand; it does help in salary and promotions.

KAPOOR: There's a higher earning potential. All [of our] staff have received significant pay increases. It's also an opportunity to implement packages from a functional perspective. A person would be successful [in ERP] if [he knew] what the business needs are and how to make the software perform in the mode the business requires.

CW: What business skills are needed to be successful in working with ERP?

FAWCETT: Communication and negotiation skills. You're now asking people who have worked on [legacy] applications to do something different.

MARSHALL: HR skills, because you are changing systems that people are comfortable with. I also look for someone who understands the supply chain.

KAPOOR: Good functional-analysis and project management skills. ▶

> Because these applications take a higher amount of maintenance, you'd better have the right skill sets.
>
> **CAROL FAWCETT,**
> **DIRECTOR OF APPLICATIONS,**
> **WESTERN DIGITAL CORP.**

Career Opportunities in Enterprise Resource Planning

DEFINITION

Enterprise resource planning is software that helps manage and automate a business. It includes applications for finance, human resources, manufacturing, logistics and supply-chain management. The major vendors in this area include SAP AG, Baan Co., PeopleSoft Inc., Oracle Corp., Lawson Software and J. D. Edwards & Co.

BY STEFANIE McCANN

IN ORDER to get on an enterprise resource planning (ERP) career path, you need skills in an ERP software package — not necessarily in a particular technology like networking or programming.

If you're interested in pursuing a career in ERP, or if your company has just implemented an ERP system, you definitely want to seek out formal training. Most ERP vendors offer courses that run six to eight weeks at a cost of a few thousand dollars, says Paul Peterson, senior partner at ERP Staffing Solutions Inc. in Brampton, Ontario.

By taking these courses, you can get certified in a module of a vendor's package such as finance or human resources. Then look for job openings on the vendor's Web page and with its alliance partners. "There can be 100 to 200 [partners]; just send your résumé to every one of them," says Peterson.

Another option is to find a company that's about to implement an ERP package.

"Maybe you have a [human resources] background and have done a variety of roles — then you can go work for someone who is about to implement SAP or another package. Now you're getting paid while you're getting trained," says Peterson.

And be advised: "This is not an entry-level career," he says. "Don't go to a recruiter with junior skills. Companies aren't going to pay an agency fee when they can go to the local university and post a job."

Others advise that if you're looking into a career in ERP, you have to know how ERP is integrated across an organization.

"IT professionals have to understand what an ERP system does — it's not just about the software and hardware," says Duane Cheek, director of ERP solutions at NETg in Naperville, Ill.

Once you know what ERP is and how it works and you're versed in a particular package, then your technical background will give you the boost you need to get a job. "Hands-on [experience] with Visual Basic, C, C++ and Java [is] a real plus," says Peterson. "When you know many languages and have worked in [Windows] NT environments, then you have the upper hand." ▶

McCann is an editor at Computerworld *Custom Publishing.*

The Pieces of ERP

There are many applications within an ERP system. Those applications can include finance, human resources, manufacturing and logistics, supply-chain management and data analysis. Within the applications are many modules, including the following ones:

ERP Glossary

FINANCE	
General ledger	Keeps centralized charts of accounts and corporate financial balances.
Accounts receivable	Tracks payments due to a company from its customers.
Accounts payable	Schedules bill payments to suppliers and distributors.
Fixed assets	Manages depreciation and other costs associated with tangible assets such as buildings, property and equipment.
Treasury management	Monitors and analyzes cash holdings, financial deals and investment risks.
Cost control	Analyzes corporate costs related to overhead, products and manufacturing orders.

HUMAN RESOURCES	
Human resources administration	Automates personnel administration processes, including recruitment, business travel and vacation time.
Payroll	Handles accounting and preparation of checks related to employee salaries, wages and bonuses.
Self-service human resources	Lets workers change their personal information and benefits allocations online without having to send forms to human resources.
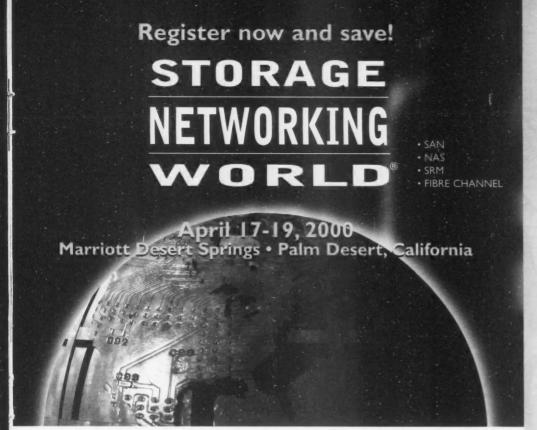
MANUFACTURING AND LOGISTICS	
Production planning	Performs capacity planning and creates a daily production schedule for a company's manufacturing plants.
Order entry	Automates the data entry and process of customer orders and keeps track of the status of orders.
Warehouse management	Maintains records of warehoused goods and processes movement of products through warehouses.
Transportation management	Schedules and monitors delivery of products to customers via trucks, trains and other vehicles.
Project management	Monitors costs and work schedules on a project-by-project basis.
Plant maintenance	Sets plans and oversees upkeep of internal facilities.
Customer service management	Administers installed-based service agreements and checks contracts and warranties when customers call for help.

SUPPLY-CHAIN MANAGEMENT	
Advanced planning applications to monitor production constraints, demand forecasting and delivery promises.	

DATA ANALYSIS	
Decision-support software that lets executives and other users analyze transaction data to track business performance.	

■ *Are there business terms you would like to learn about in QuickStudy? Please send your ideas to quickstudy@computerworld.com.*

Y2K'S FALLOUT OF GOOD FORTUNE

The year 2000 problem transformed some IT organizations and their companies for the better — and there's no turning back. By Kathleen Melymuka

IT'S MOSTLY OVER. If your people were skillful and thorough and your company was lucky, you've passed into 2000 with your business intact. All of your employees are breathing more easily and congratulating one another.

But there remains just a touch of ambivalence. It sure would be nice if you could show that all that time, money and effort bought your company something other than survival.

Well, it did. Y2K managers say the effort had positive, transformational effects on every level it touched, from information technology departments to businesses, multinational corporations and even entire industries. Here's how:

■ Project Management

The big winner, most Y2K veterans say, has been project management. "We've gained a wealth of experience," says Steve Jost, Y2K manager at Deere & Co. in Moline, Ill. "There's been a lot of honing of skills; working more tightly together with large groups in different parts of [the] organization. We have much more extensive and tight communication and a lot of new project-management situations under our belts."

There's also a new understanding of the dynamics of cross-functional project management, which will be increasingly crucial in the global marketplace.

"Y2K has been a major cross-functional project, and we have learned a great deal about how to do that," says Jerry Miller, CIO at Sears, Roebuck and Co. in Hoffman Estates, Ill.

"The processes and disciplines we've put in place will be a big help for us in the future," says Miller.

An important side effect of the new emphasis on project management has been the emergence of the project office, which, in many cases, began as the Y2K program office. "It's an enterprisewide effort to look at planning, quality assurance, infrastructure management — the things that support enterprise IT projects," explains Chuck Aquilina, director of the Resolve 2000 practice at Keane Inc., a Boston consulting firm.

■ Contingency Planning

Y2K also vastly improved other corporate processes such as the building and testing of business continuity plans.

"We're going to come out of this with very up-to-date business continuity plans, and they will be in a consistent format across the organi-

zation and worldwide," says Jost.

Before concerns about year 2000 arose, contingency planning didn't get much attention, but now everyone is committed to keeping plans up-to-date and well rehearsed. "The world is too dynamic," says Jost. "We have to be sure we're able to recover from unforeseen contingencies."

The lessons of Y2K in business continuity planning will serve the city of Chicago for years, says Barrett Murphy, a director in the mayor's office.

"For us, it's really been great because all the preparation for disaster is stuff we needed to do anyway," he says. "Power outages happen all the time. Servers go down all the time. We've really been able to update our contingency plans and make them much broader. Now if we lose 911, we can still operate."

BUSINESS

■ Testing

Y2K taught the importance of testing and yielded greatly enhanced testing procedures, as well as procedures for wholesale software conversion. "We developed a very rigorous process for remediating and testing for Y2K and generated very comprehensive documentation," says Jost. "We've got much more comprehensive test data, test beds, databases and much better, more thorough software conversion procedures."

Most important, "that's very repeatable," he says. "It can be used for many types of things going forward." For example, should the U.S. run out of 10-digit phone numbers, as many expect, all applications might have to be changed to accommodate longer numbers. "You're really looking at the same kind of process as Y2K," Jost says.

■ Asset Management

"I always said the best way to make sure an application is Y2K-compliant is to get rid of it," says Jost.

"We've retired a lot. It keeps support costs down and makes things much more manageable," he adds.

Many Y2K inventories turned up antique hardware and mystery software. "I know a case where they found an old DOS machine running some system, and nobody knew what it was doing," says Scott Shemwell, managing director at Enterprise Networking Systems Inc., a Houston consulting firm.

Putting those relics out of their misery streamlined systems and saved untold maintenance costs, and the inventories allowed people to get a handle on what remained. "For the first time, we have a real inventory of systems and embedded chips," says Murphy.

Y2K work clarified not only what the IT assets were, but also how they were related, says David Iacino, director of the Millennium Project at Bank-Boston. Now when someone requests a change, IT managers can look up the system and immediately see all the areas that will be affected. "We never had that kind of asset management before," he says.

Having that kind of information has let Alliant Energy Corp. in Madison, Wis., institute what it calls "clean configuration management," says Suzette Mullooly, a Y2K project manager. Now upgrades and system changes are better coordinated to avoid disruption.

■ Communications

Y2K improved communications, both within companies and among companies and their suppliers and customers. "We have done a great deal of communication to keep our employees informed and advised of their responsibilities to our board of directors and the investment community and to our customers," says Skip Patterson, Y2K

STELLA JOHNSON

> "
>
> We . . . learned a great deal about how to manage relationships with vendors and to develop them to the point of trust.
>
> **SKIP PATTERSON,**
> **Y2K PROJECT MANAGER,**
> **BELL ATLANTIC**

project manager at Philadelphia-based Bell Atlantic Corp. "We have also learned a great deal about how to manage relationships with vendors and to develop them to the point of trust and responsiveness."

Year 2000 opened up communications throughout the city of Chicago. "We set up a level of communications that never existed before," Murphy explains. "Now we're cross-integrating systems between agencies. So if we see a problem with a [Chicago Transit Authority] building, instead of saying 'It's not our responsibility,' we can [call attention to it] and track it."

■ Understanding of Systems

"We've gained a fuller knowledge of our IT systems," says Mullooly. For example, a few years ago, Alliant used a consulting firm to help develop a customer information system, but because

of inadequate knowledge transfer, the inside people never quite achieved a detailed understanding of the system. After delving into the code during Y2K remediation, "we have a much better understanding of it ourselves," she says. "In the future we'll make sure there's better knowledge transfer."

■ Hardware and Software

While many companies reduced IT inventory as a result of year 2000 projects, many also replaced outmoded systems with new and improved ones. At Vermont Student Assistance Corp., a nonprofit guarantor and lender of student loans in Winooski, Vt., the discovery that an aging phone system wasn't Y2K-compliant led to an overhaul of the entire IT infrastructure.

"We were at a transition point where we were pushing the boundaries of what we had," says Y2K coordinator Tod A. Provost. Since a number of upgrades were required anyway, the lender decided to replace virtually everything, from PCs and servers to cabling and network hubs.

"If it wasn't for Y2K, we would've continued on with the piecemeal upgrades," Provost says. Instead, "Y2K allowed a corporate initiative to standardize everything, to implement a very, very successful training procedure to bring everyone up to speed on all the applications, to become very efficient and to have additional flexibility for future growth."

Replacing old systems led to improvements in business processes in Chicago. For example, in the city government's old system for tracking complaints and follow-up activities — such as filling potholes and trimming trees — workers simply indicated whether a fix had been made. "Now they put in a description of the problem and the

crew, how many bags of cement or how many bricks, how long it took," Murphy explains.

Similar new systems track everything from newly planted trees to damaged trash cans. "It's given us a much better ability to track how efficiently they're doing the work, so now we can do best practices and compare across the nation" with other big cities, Murphy says.

■ Best Practices

Y2K increased cooperation among international offices of multinational corporations and even among competitors in the same industry. "We shared best practices with BankBoston in Argentina, Brazil, Chile, Panama, Mexico and Colombia," Iacino says. "We've shared very openly with [competitors] because we all had the same problems. That's a huge change. We had never done that before."

And the change encompassed more than private sector banks, he says. "It was unheard of for the Federal Reserve to share with the [Federal Deposit Insurance Corp.], but they had to come together, and they too have [benefited] from this process."

Having seen the value of sharing, Iacino says, there's no going back. "Look ahead at e-commerce," he says. "Why should we all develop different processes, especially if we will be 'e-commercing' with one another? Why don't we set up something standard that pulls together the best minds to see how this will operate?"

■ Appreciation of IT

Finally, the Y2K effort brought a new understanding of IT's importance in everyday life.

"The biggest thing is a new awareness of how computers are integrated into day-to-day business more than people ever thought," Murphy says, adding that he sees a new respect for IT among all kinds of city constituencies in Chicago.

"Companies and governments realize how important IT is to getting day-to-day business done," he says. "The barriers between MIS and operations have broken down, and [users] are embracing it. That's the biggest thing Y2K has brought."

And end users aren't the only ones who have gained a new respect for technology. "Y2K forced executives to own IT," Aquilina says. "They need to be involved and understand what's happening with systems, and that won't go away."

Closer executive involvement also means greater accountability. "The days where bugs were accepted — those days are gone," Aquilina says. "Expectations are much higher. If a system goes down, somebody has to answer why. It's a different world." ▶

BUSINESS

Who's Controlling Cyberspace?

A Harvard law professor's new book warns that the Internet is losing its independence to commercial interests. That, he says, may invite regulation of cyberspace.

In a darkly pessimistic new book, Harvard University law professor Lawrence Lessig argues that the Internet is morphing from a libertarian's utopia to a place stifled and controlled by commercial interests. In Code and Other Laws of Cyberspace, *Lessig says companies that were once "bastions of unregulability" are now producers of technologies that facilitate regulation of cyberspace.*

Lessig, an expert in cyberlaw, served last year as a special master in the Microsoft Corp. antitrust case and has been asked to advise the court on it this year. He says that although the outcome may be irrelevant for Microsoft, it has important implications for how the industry behaves in the future. He spoke recently with Computerworld's **Gary H. Anthes.**

You say that regulation in areas such as privacy, intellectual property and free speech is effectively shifting from lawmakers to software writers. But doesn't a free market usually make optimum decisions for society as a whole? I don't think you can say that the incentives of companies will always align with the incentives of society. For example, companies get data about individuals for free by virtue of the architecture of the Web. If you believe this resource shouldn't be given for free, or if you believe individuals should have better control over it, then you could imagine a role for somebody — the state, say — to facilitate architectures that give individuals greater choice.

You worry that independent bodies such as the Internet Engineering Task Force (IETF) are also losing power to the corporate code writers. What's wrong with that? Last year the FBI came to the IETF and asked them to modify the protocols of the Net to . . . make it easier for the FBI to monitor traffic. The IETF, being a very independent group, basically told the FBI to go to hell. There is relatively little the FBI could do to get them to come along.

But couldn't legislation compel the IETF to comply with such requests? Legislation is only as effective as enforcement mechanisms. It's easy to get Microsoft or AT&T to obey the law because if they don't, you can seize their assets. But the IETF is just this group of individuals — basically, who-

ever shows up at meetings — and it's not clear whose assets you'd seize.

You seem greatly troubled by trends in intellectual property rights. Patents, particularly, will have a significantly detrimental effect on innovation in cyberspace. There were no patents on business methods until 1998. You didn't have to get a lawyer to negotiate the rights to use technology, and that's why so many types of people could play the (e-commerce) game.

Will Congress rein in these kinds of patents? I hope so. We need to resolve this very quickly, because there will soon be a whole slew of patents claiming the space of e-commerce. Then, anyone engaging in e-commerce will be forced into this licensing game before they can turn on their Web site. That's an extraordinarily high cost.

You say software copyright laws are badly flawed. How? Copyright law was originally drafted to create incentives for creators of intellectual property while ensuring that a certain amount of it gets turned over to the public. The objective is to sustain access, fair use and limitations on intellectual property rights. That perspective is completely alien to Washington today. Washington's view is: The more we protect intellectual property, the better.

You argue that the year 2000 problem stemmed, at least in part, from a lack of government regulation. How might regulation have helped? The question is whether some kind of contract law or tort law might have created the incentive for people to deal with the problem much sooner. We could have minimized the cost of this problem through a law that made it clear that companies would be liable if they produced software [with Y2K flaws]. It's too easy to waive liability in software contracts.

Is our antitrust system agile enough for the fast-paced IT world? Antitrust law is agile enough . . . to protect consumers. But enforcement mechanisms are extremely expensive and cumbersome. If Microsoft prevails in the present trial, there will be a good argument that this was an extraordinary burden to place on one company for basically six of the past 10 years. But if they lose, there will be a claim that, "Why did it have to take us six years to resolve it?" We will see the government try to find ways to fast-track the process.

But will the industry have changed so much that the result just doesn't matter? It may be irrelevant with respect to Microsoft. But the reason the government brings these cases [to trial] is not always to deal with a particular party but to establish precedents that will govern behavior in the future. So it could have a positive effect, as long as the perspective is on the rules we are trying to set up for the Information Age generally, as opposed to what are we doing about Microsoft. ▶

WHO IS HE?

Lawrence Lessig is a Harvard law professor who served last year as a court-appointed special master in the antitrust suit against Microsoft. He is also the author of a new book, *Code and Other Laws of Cyberspace* (Basic Books, New York).

Was it fear that drove 9 of the top 10 Internet companies to Network Appliance?

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JOE AUER/DRIVING THE DEAL

Bidders' conference: Less aggravating

IF YOU'RE TRYING TO DO BETTER DEALS with your suppliers, make a bidders' conference part of your procurement process, if you haven't already. This valuable negotiation tool brings all potential suppliers together in a room, where you can explain your procurement process requirements to all of them at the same time. You can also use the occasion

to provide further insight into what you're trying to accomplish with the project you're launching and, most important, give the suppliers' representatives a chance to eyeball each other.

A bidders' conference sets the stage for you to gain valuable concessions, since it demonstrates capitalism at work: healthy competition on price and quality. This is a dramatic contrast to a non-competitive, sole-source procurement, where you mandate that a given vendor is a "strategic supplier" or a "standard." Giving a single supplier a "lock" on your business sets aside some basic economic principles and dynamics that benefit you greatly. For potential suppliers, the bidders' conference

starts the relationship on the right foot and establishes that you're in control. For suppliers with whom you've already done deals, the conference reinforces that you're still in control of the process and have alternatives, which are essential components of a strong negotiating position. (Actually, putting an arrogant incumbent vendor in the audience in a bidders' conference is a humbling experience for him.)

Without establishing control of your vendors, you'll be reacting to supplier ploys, end runs and cozy supplier relationships within your organization — all designed to eliminate competition and win the business without having to *earn* it.

The bidders' conference

also paints a clear picture for potential suppliers that there really is competition. This, of course, focuses suppliers on the need to do their best and give you the best deal. It also can remind everyone (including you) that you've got what they all want — the money!

To be successful, a bidders' conference must be organized and executed with precision. It should begin with opening remarks from your negotiation team leader, who should introduce the team, ask the suppliers to introduce themselves, present the agenda and identify the conference guidelines. An overview that demonstrates how the project will match corporate strategy and discusses key

objectives should follow. If possible, have the senior manager from the business unit for whom the deal is being done present the overview. It's an added benefit if the senior manager can look all the vendor reps in the eyes and assure them it will be a fair evaluation.

Next, a member of the negotiating team should discuss the procurement process itself, identifying all steps and where the bidders' conference falls on the outlined process. Stress key points — for example, the successful bidder will be required to commit contractually to deliver a complete solution, assume responsibility, share risks and deliver on time and within budget.

With the competitive stage set and the process defined, the conference can focus on the specific project or purchase at hand. The project leader and technical team members should discuss the project's purpose, the results to be produced, the general time line and any relevant

technology or architecture issues. Suppliers can then be given an opportunity to ask questions.

You might want to require that all vendors' questions be submitted in writing after the conference and state that you will distribute the questions and your answers to all the suppliers represented. This once again gives an appearance of formality, fairness and equality of information, which stimulates competitive juices among the competing vendors.

A typical bidders' conference takes four to six hours — not much time within the overall project time line. But by dealing with all your would-be suppliers at the same time on many issues, you save yourself the effort of having to meet with each of them separately — a longer process.

The bidders' conference adds tremendous value and power to your procurement process, which results in better deals. And that's a good thing. ▶

JOE AUER is president of International Computer Negotiations Inc. (*www.dobetterdeals. com*), a Winter Park, Fla., consultancy that educates users on high-tech procurement. ICN sponsors CAUCUS: The Association of High-Tech Acquisition Professionals. Contact him at joea@dobetterdeals.com.

BRIEFS

Ecampus Auction Site

Ecampus.com Inc., a virtual college bookstore in Lexington, Ky., has announced that it will be teaming up with FairMarket Inc., a Woburn, Mass.-based company that offers services and software to set up and host private-label auctions via a company's Web site. The Ecampus auction site is scheduled to launch early next month. Financial terms of the agreement weren't disclosed.

Cab Services

Burlington Motor Carriers Inc. in Daleville, Ind., a truckload carrier that services the continental U.S., Canada and Mexico, has signed a joint marketing agreement with Coral Springs, Fla.-based PNV.net Inc., a provider of in-cab bundled telecommunications, cable television and Internet access services to drivers. Under the agreement, Burlington will market PNV.net's services to its drivers and offer them the option of paying for the services through an automatic payroll deduction.

Amazon Purchase

Amazon.com Inc., the Seattle-based online retailer, has announced that it will buy 5% of Audible Inc., an audio playback services company in Wayne, N.J. Based on Audible's closing price of $14.50 on Jan. 28 on Nasdaq, with $25.6 million outstanding, the deal is valued at $18.3 million. The deal is expected to close later this quarter.

Amazon.com customers will be able to purchase Audible.com's digital audio content, which includes radio programs, newspapers, magazines and speeches. During the course of three years, Amazon.com will receive $30 million from Audible in exchange for Audible.com's content and services.

Ask Jeeves Adds Nike, Fidelity as Customers

Ask Jeeves Inc., the natural-language search service, has announced that it will provide online question-and-answer services for both Nike Inc. in Beaverton, Ore., and Fidelity Investments in Boston.

Financial terms of the two deals haven't been disclosed.

Other customers of Emeryville, Calif.-based Ask Jeeves include Palo Alto, Calif.-based ETrade Group Inc.; Round Rock, Texas-based Dell Computer Corp.; and Microsoft Corp.

Tracking Trucks

Intrenet Inc. in Milford, Ohio, a flatbed truckload company, has announced that it is implementing a companywide mobile and freight-tracking system. Intrenet has entered into a contract with Qualcomm Inc. in San Diego, which will outfit the entire Intrenet fleet, including Albuquerque, N.M.-based Roadrunner Trucking, with the Qualcomm OmniTRACS system, a nationwide satellite tracking system.

Domain Name Sold

Marcelo Siero, a Silicon Valley computer consultant, sold the Internet domain name Loans.com for $3 million in cash at an auction. GreatDomains.com in Universal City, Fla., auctioned off the name to an undisclosed publicly traded company. The sale is second only to Corona del Mar, Calif.-based eCompany's $7.5 million purchase of the domain name Business.com in November.

Feedback for FedEx

BetaSphere Inc. in Palo Alto, Calif., a provider of Web-based customer feedback and services, last week announced that Federal Express Corp. in Memphis has selected the firm to implement a series of customer feedback programs for a variety of FedEx e-commerce services.

Windows 2000

▶ Q&A

Mobile users win big with Windows 2000 features

The advantages offered by Windows 2000 to mobile computer users represent a quantum leap over those available through Windows NT. To better understand those advantages, Windows 2000 Advantage news editor Bruce Hoard interviewed Bob Williams, managing partner at Enterprise Certified Corp., a consulting services, training and IT certification body. Williams is co-author of the forthcoming *Ultimate Windows 2000 Guide* (with Mark Walla) and will debut as a Windows 2000 Advantage columnist in March.

Q: How will laptop computer users benefit from a Windows 2000 environment?
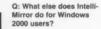
Williams: Very clearly, IntelliMirror is the biggest benefit. Whether they are online to the network or working independently, IntelliMirror lets people preserve consistent desktop settings, update and access applications and synchronize files stored either on laptops or servers.

Q: Please give an example of how that has value for a traveler.

Williams: Assume a person is traveling and they have a group of files that they know they are going to be working on. These files are on their server at work. With IntelliMirror, they can go in and move those files to the laptop and work on them offline. Later, with the help of IntelliMirror, when they do log back on to their work server, everything on their laptop will be synchronized with the server files, so the server files are updated and identical to the laptop files.

Q: Please give another example.

Williams: OK. It's what I call "DLL Hell." Quite often, because of the limited disk capacity of laptops, you will find yourself removing files. During that process, you might accidentally remove an important component of an application — a DLL or something of that nature. When you reconnect with your server, IntelliMirror automatically seeks out and loads the latest DLLs for your applications so any of them with missing components are reconsolidated.

Q: What else does IntelliMirror do for Windows 2000 users?

Williams: Another advantage is the advanced plug-and-play capacity that exists with Windows 2000. If you're on the road and you need to hook into any kind of device, Windows 2000 will go out there and detect what you have and make that particular device operable for you as you move from one location to another.

Q: How does Active Directory contribute to the mobility of Windows 2000?

Williams: Because of Active Directory, you have the ability to move from any computer, including a laptop, and hook into the network. You are not locked into always having to log in to the same machine. So, for example, if you are traveling with two or three different people and you just have one laptop among you, any one of the people in your party can use the laptop to log in to their server. When they do so, they will be presented with their profile, their desktop, their applications and their own directory. ▶

To read the full text of our interview with Bob Williams, visit, **www.Windows2000Advantage.com.**

ADVANTAGE

▶Portables

Hot-docking, battery life lead advances

By Steve James

Portable PC users who travel, go to meetings or swap accessories will find much to like in Windows 2000, which bends the old rules of mobile computing to make portability easier.

For road warriors on long plane trips, Windows 2000 provides longer battery life for laptops. For on-the-go people who want to take a PC to a meeting, Windows 2000 lets them temporarily undock from the office LAN without losing the network connection. Those who want to swap disk drives in a portable will find they can do so in Windows 2000 without rebooting.

Unprecedented emphasis on mobility

"Windows 2000 is the first operating system from Microsoft that has many spe-

cific features geared to mobile users," says Peggy Murrell, manager of operating systems and software technology planning for Compaq commercial portables. "Windows NT and Windows 98 had some of these features, but not all of them."

Windows 2000 extends battery life by shifting power management from the computer's BIOS to the operating system. "The OS can then control the power-down of individual devices, such as the CD-ROM drive or PC cards, based on usage. By selectively powering down devices that aren't being used, the OS can improve battery life," Murrell says.

Enhanced power management

Bob Green, director of advanced architecture and software technology in the portable PC division of Compaq, has been using Windows 2000 on a Compaq portable for months. "To me the advantages of Windows 2000 include good power management support similar to that in Windows 95 and Windows 98 along with the reliability of Windows NT," he says.

The longer battery life offered by Windows 2000 is a result of the Advanced Configuration and Power Interface. Under the old power management architecture, Advanced Power Management, when users went on the road they cut processor speed from 300 to 150 MHz or from 260 to 130 MHz, because by cutting the processor speed they used less power. Depending on the system and the battery, the combination of cutting processor speed and reducing the screen backlighting to the minimum could increase battery life by about 30%. ▶

To read the full text of this story, visit **www.Windows2000Advantage.com**.

CONFERENCE NEWS

Microsoft: Windows 2000 is its most secure OS ever

By David Needle

If you're worried about the security of your computer systems (and these days, who isn't?), Microsoft is ready to help. That was the message Microsoft executives conveyed at the recent RSA 2000 conference, an annual gathering of security experts and IT professionals, held this year in San Jose. Microsoft highlighted several initiatives, unveiled alliances and described features of Windows 2000 that it says make it the most secure operating system it has ever shipped.

With hacker break-ins and computer viruses much in the news the past few years, security is a prime concern. But to understand the problems and challenges faced by IT professionals is to realize how little attention has been paid to security until recently.

"Ten years ago there was more concern about getting people connected than there was about security and how to keep people off the network," says Brian Valentine, vice president of the business and enterprise division of Microsoft. Valentine, who heads up the group responsible for Windows 2000, says that even five years ago there was more of an IT focus on

building company intranets and less attention to external security threats.

"Now the Internet is everywhere. It's just exploding," Valentine declares. "So we have to build products with security as a primary consideration."

Microsoft intends to be better prepared when inevitable security issues crop up.

The company relaunched its Security Response Center, which operates around the clock, seven days a week and promises a response to every report it receives within 24 hours. A related Web site (*www.microsoft.com/security*) provides patches or workaround solutions as they become available.

"i think the Response Center shows Microsoft is being more responsive to security issues," said J. Craig Mudge, CEO of Pacific Challenge, an Internet e-commerce consultancy.

Valentine said Microsoft is taking a leadership role on security issues. For example, the Response Center will even try to help with non-Microsoft-related security issues. ▶

To read the full text of this story, visit www. Windows2000Advan-

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TECHNOLOGY

BULLETPROOFING WINDOWS NT

After being forced to use Windows NT for a crucial new service, the Early Warning Evacuation system, SCC Communications in Denver is now trying its best to fortify the NT environment. ▶ **62**

APP MONITORING

A new licensing structure from monitoring software maker Ganymede Software will make it easier and cheaper for systems managers to try application monitoring. ▶ **64**

KNOWLEDGE TRACK

Web portal technology meets knowledge management at start-up KnowledgeTrack, which promises a virtual one-stop shop for collecting diverse forms of corporate information. ▶ **74**

NOTEBOOK PROTECTION

Last year, 303,000 notebook PCs were stolen in the U.S. So how do you protect yours? There's a a small industry that focuses solely on preventing the loss of notebook hardware and data. *Computerworld* reviews some of the available security products. ▶ **68**

START-UP VET

Working at an Internet start-up is risky and involves long days and heavy lifting. However, the payoffs can be big.

One start-up veteran talks about the ins and outs of start-up life to help you decide if a start-up is the environment for you. ▶ **79**

BLAME GAME

Service degradation problems are increasing rapidly in today's Net-centric business world. But if information technology managers aren't careful, the tools they use to diagnose performance troubles could become part of the problem. ▶ **70**

PC-FREE E-MAIL

Lucent Technologies plans to market new applications to service providers that will let people access e-mail and faxes without PCs. End users will be able to use personal digital assistants, fixed-line telephones or mobile telephones to get their messages. ▶ **67**

TV SHOPPING

Want to buy a pizza or a home mortgage over your TV? Well, a British company uses data middleware, messaging and an intelligent information switch to deliver TV-based shopping to more than 2 million homes. ▶ **72**

DSL GROWING

Digital Subscriber Line technology is catching on. It could prove to be a good way to provide digital voice connections. However, it will probably mainly be used to give fast connections to small offices. See QuickStudy. ▶ **69**

UNITED CENTER clerks can use handheld devices to keep track of sales of Chicago Blackhawks jerseys

HANDHELDS KEEP ARENA IN STOCK

UNITED CENTER ARENA IN CHICAGO is using handheld computers to make sure it doesn't run low on coveted Michael Jordon jerseys or other products. The arena is linking handheld computers to an Oracle8i database via Oracle Lite to track inventory and sales. And the early reviews are favorable.

64

Bullet-Proofing NT

Marathon Technologies links Intel servers

BY JAIKUMAR VIJAYAN

THE PLACE: Loveland, Colo. The date: Dec. 28, 1999. A freight train believed to be carrying nearly 20,000 gallons of hazardous material has just derailed, putting hundreds of citizens in the vicinity in danger.

Fire Chief Dick Minor has little time to act. Using a computerized map of the city, Minor and his associates quickly outline an area in the shape of a polygon around the center of the crash site.

Within seconds, a computer in the fire department's main transmission center automatically starts phoning hundreds of residents living within that polygon with a prerecorded message asking them to tune in to the city's AM radio station for evacuation and other information.

Fortunately for the 52,000 residents of Loveland, the Dec. 28 "accident" was just a simulation. But had it been real, Minor would have been able to call the affected residents thanks to a recently installed Early Warning Evacuation (EWE) system.

Making EWE particularly interesting is that while reliability is absolutely key to its success, it's entirely based on Windows NT Servers, an architecture many information technology managers say is less than bullet-proof.

SCC Communications Corp., one of the largest providers of 911 services in the country, usually runs all of its core services on highly fault-tolerant servers from Tandem Computers Inc. in Cupertino, Calif., said Mark Knox, a SCC system architect.

Boulder, Colo.-based SCC is also the developer and provider of the EWE service. The decision to use NT for EWE was dictated by the fact that a crucial third-party geographic information system application needed for the service to work was available only on NT.

"We were very uncomfortable with the idea of running it on NT. We would have much rather had the service running on Unix boxes," Knox said.

Instead, the company has been pounding away trying to make its Windows NT environment as rock-solid as its Tandem servers have proved to be over the years.

The EWE is a reverse 911 service that lets public-safety officials quickly launch an automatic telephone alert to targeted segments of the population.

Ensuring much of the reliability and service availability is hardware and software technology called Endurance Array from Marathon Technologies Corp. in Boxboro, Mass.

The technology ties four single-processor Intel Corp. PC servers into a single, larger logical server.

The servers are broken into pairs, or "tuples," as Marathon calls them. Each pair consists of a "compute" server that houses the operating system and all applications and an I/O server for all I/O operations, said Craig Jon Anderson, a director at Marathon.

Patented synchronization software keeps the application running in absolute lockstep on each tuple. If one tuple crashes, the application keeps running on the other.

"There are always redundant elements executing all operations at all times," Anderson said. "Think of it as the tires on an 18-wheeler . . . even if one tire blows out, the truck keeps running."

With Marathon's technology, the same application runs on two servers at the same time, he said.

But Marathon's Endurance Array can only be used to tie together single-processor Intel servers, which may prompt SCC to consider other options as its scalability requirements grow, said Rusty Robinson, a Unix/NT administrator at SCC.

SCC's next release of EWE, for instance, will be Web-enabled, and users will be able to access it via the Internet, which will require larger servers.

"We are looking forward to the next release of Endurance in hopes it will support [symmetrical multiprocessing] for our SQL Server 7.0 database," Knox said. If not, SCC will probably look at NT clustering technology in Windows 2000. ▶

SCC'S NT-BASED service helps public safety officials quickly warn the public of emergencies like this tornado

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DEBORAH RADCLIFF/HACK OF THE MONTH

Cover your SNMP

REMEMBER SNMP, the Simple Network Management Protocol? It's a protocol responsible for enabling network-management software to query the status of key hardware on your machine, such as ports that are open and running TCP and UDP (User Datagram Protocol) connections. And with specific extensions to SNMP, like power supply or boot management, you could even use the protocol to turn machines on and off.

SNMP uses the community name "default" — think of it as a password. If this community name isn't changed, attackers can slip right in and control SNMP to map your network, change routes of packets and do all kinds of evil things.

Depending on the type of SNMP running on your machines, attackers can bring interfaces down, change the IP address or raise the voltage on the power supply from 120V to 210V and watch it smoke.

Secret Hacker Dude and I did this the other night. We hit a bank of DSL subscribers with a Solar-Winds.Net IP Network Browser, a network-management tool available at *www.solarwinds.net* for $99. SolarWinds sent queries for the default community to TCP Port 161 (the SNMP port) on those machines.

Several IP addresses responded back, meaning they were using the "default" community name. We then pointed Solar-Winds against one of those IP addresses.

SNMP spilled its guts.

We saw Ethernet and interface cards, upstream and downstream networks, even how long machines had been running.

We also saw UDP services, which would gladly tell us of other networked services running on the host such as the hacker's favorite domain name server, which lists all the other machines within that domain and what they do. This is great to know, because crackers could find the mail server and other rich points of password harvest.

If crackers find a Solaris box with SNMP installed on it, they could kill a process and allow an attacker to review the output of the core file (the /etc/passwd) to crack passwords.

Security professionals who perform security assessments say the SNMP default is one of the top vulnerabilities they repeatedly uncover during testing.

"It's usually trivial. Once we get into a large organization, we start popping SNMP devices all over the network," says Stuart McClure, CEO and president of Rampart Security Group in Mission Viejo, Calif.

"Network administrators don't consider this a vulnerability worthy of inventory because they think the data on the hard drive is the only thing that needs protecting, not the data that goes over the wire," McClure says.
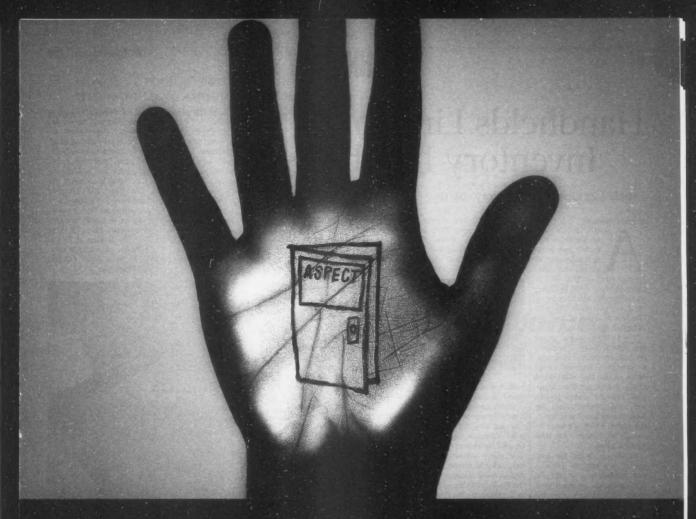
McClure outlines this exposure in *Hacking Exposed: Network Security Secrets and Solutions* (Ozborne, McGraw-Hill, 1999).

Since SNMP is a vital network and systems management protocol, changing the community name to a complex alphanumeric password is key.

To check your vulnerability, run SNMPUTIL.EXE (part of the Windows NT resource kit from *www. microsoft.com*). But it only checks against one IP address at a time, which is laborious. You can also get SNMPWALK off *Fresh meat.net*, which runs on Linux and also checks one address at a time. Or you can run NT-based Solar-Winds, which will discover all SNMP devices on your network. ▶

DEBORAH RADCLIFF is a *Computerworld* contributing writer in Northern California. Contact her at derad@aol.com.

INTRODUCING THE ASPECT
CUSTOMER RELATIONSHIP PORTAL.
MAKING IT EASIER
FOR YOUR CUSTOMERS TO
REACH THE RIGHT RESOURCE.

Major corporations such as Cellular One™ in the San Francisco Bay Area and Peachtree
Software™ use the Aspect Portal to offer their customers a consistent experience—
no matter how the customer contacts them. The Aspect Portal is a framework for CRM
that allows true integration of all contact media—phone, fax, e-mail and Web—with
front-office, back-office and contact center systems. Find out how Aspect, a leader in
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ASPECT
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1-19

TECHNOLOGY

Handhelds Link to Inventory Database

Oracle Lite facilitates inventory control

BY MATT HAMBLEN

AMID THE CRUSH of thousands of basketball and hockey fans, vendors of jerseys and other sports merchandise at the United Center arena in Chicago are using handheld computers linked via Oracle Lite to an Oracle8i database to track inventory and sales.

The $250,000 project shows how critical handheld computing has become in linking sales to inventory. The technology helps ensure that the United Center doesn't run low on coveted Michael Jordan jerseys and other products, said Joe Inzerillo, technical director at the arena, which is owned by the United Center Joint Venture in Chicago.

Handhelds with bar-code readers are used to check in merchandise to a warehouse, and handhelds are again used to record each sale a vendor makes. Meanwhile, the back-end database is used to track inventory and will soon be linked over an extranet to allow automatic ordering of needed merchandise.

Key to linking the handhelds to the center's Oracle8i database is Oracle Lite, 50KB client/server software that resides on 50 SPT 1700 handhelds equipped with bar-code readers from Symbol Technologies Inc. in Holtsville, N.Y., Inzerillo said. The handheld runs a Palm III operating system from Palm Computing Inc. in Santa Clara, Calif.

Early Review Favorable

Oracle Lite, Oracle Corp.'s thin-client database for Java, appeared on the market last year, and analysts said the United Center seems to be one of the first customers that's willing to talk publicly about using it. Inzerillo said it was an obvious choice because the United Center has had an Oracle8i server for three years and it was already familiar with Oracle products and services.

"The Oracle Lite concept is you have reconciliation and synchronization [with the database server] built into the handheld, and that is what attracted us," Inzerillo said. "No-

Handheld Market

Projected sales of handheld software and hardware:

2000	2002
$3.5B	$4.5B

SOURCE: GARTNER GROUP INC. STAMFORD, CONN.

body has attacked the mobile market as they have."

When the system goes wireless by next year for merchandise and food and drink sales, it will automatically work with Oracle Lite without requiring a new client software installation, said John Simon, business development manager at Braxton Butterfield Consulting Inc. in Arlington, Ill., the integrator for the United Center project.

One benefit of the handheld application is that vendors, usually rushed at breaks in the game, can complete sales by making only one or two keystrokes, without making pen inputs to the handheld, Simon said. Oracle Lite will also run on Windows CE-based handhelds if there's ever a need to switch hardware.

The handheld project was conceived last summer and only took six weeks to implement, in time for the start of the Blackhawks' hockey season and, later, the Bulls' basketball season, Inzerillo said. Simon said the quick implementation was testimony to Oracle Lite's ease of implementation.

Less than six months after the system went into use, Simon said he has seen a 200% annual return on investment, with the merchandise inventory cut by more than half, from $900,000 to $400,000.

Clerks use the handhelds to read bar codes on cartons shipped to a loading dock. Vendors who sell at the arena from nearly 50 booths and two stores use them to scan the bar codes of items as they're sold. The two stores use the devices to issue receipts on printers linked to the handhelds via infrared connections.

At monthly inventory time, two or three clerks can read the entire warehouse in less than three hours — a big reduction in what was previously a three-day process. The United Center is also updating its system with a Web application server from SilverStream Software Inc. in Burlington, Mass., to automatically send inventory purchase orders to suppliers via the Web, Simon said.

Analysts said they haven't seen enough installations of Oracle Lite to begin measuring sales, but they said the market is growing. Competitors involved in synchronizing handhelds to databases include Sybase Inc. in Emeryville, Calif.; Synchrologic Inc. in Alpharetta, Ga.; Puma Technology Inc. in San Jose; and Riverbed Technologies in Vienna, Va.

According to Tim Scannell, an analyst at Mobile Insights Inc. in Quincy, Mass., "A lot of people are looking at Oracle and Sybase, especially as companies investigate wireless communications." ❯

UNITED CENTER CLERKS track inventory and sales by scanning bar codes with handheld devices linked to a database via Oracle Lite

New Licensing Structure for Ganymede Software Tools

One price covers net and app monitors

BY SAMI LAIS

A new licensing structure from software maker Ganymede Software Inc. will make it easier and cheaper for systems managers to try application monitoring.

The Morrisville, N.C.-based vendor today announced a "universal license" scheme for its Pegasus 2.2 monitoring software, which will be available by April 1.

Pegasus Network Monitor and Pegasus Application Monitor are being restructured as a three-part tool: a console with network and application-monitoring components. Each component used to cost $25,000. A Pegasus 2.2 server license starts at $25,000 and includes both components.

While Version 2.2 simplifies monitoring tasks and offers features such as automatic updates for client-side agents, the insight into performance management is more significant, said Dennis Drogseth, an analyst at Enterprise Management Associates in Boulder, Colo.

"A year ago it would have seemed byzantine to have so many options," he said. "But performance management is much more complex and requires more dimensions" of data correlation and interpretation than network performance management alone.

SAS Institute Inc. in Cary, N.C., runs only the Network Monitor, but the new licensing could change that, said Stephen Sanger, an SAS system performance analyst.

"When we did the evaluation, we couldn't come up with justification to buy the application monitor," Sanger said. "Application data is harder to process, and it's harder to decide what to do with it."

A single Pegasus 2.2 server license might have rights to implement 1,000 agents — 900 network and 100 application. But as demand for application monitoring increases, managers could change the ratio. That would let us "make a transition into doing application monitoring at our own pace," Sanger said.

Currently, Application Monitor's Performance Endpoint software agents sit on client machines and passively watch real traffic. Network Monitor's Application Scripts actively generate synthetic traffic and run regular tests.

The new Performance Endpoints can operate in application- or network-monitoring mode, or both simultaneously.

"That would be good for troubleshooting," Sanger said. "We could have the Endpoints set to do active monitoring, but if we got user complaints about an application, we could turn on the passive monitoring to do a detailed [reading], then turn it off."

Endpoints can automatically load upgrades, which Sanger said would simplify his job.

Pegasus runs on Windows NT. It monitors IBM's OS/2 and MVS as well as Windows, NetWare and Unix. ❯

Microsoft Issues Patches for Win 2000 Security Holes

BY DOUGLAS F. GRAY

Microsoft Corp. last week issued the first patches to fix security holes in the much-delayed Windows 2000 operating system — just two weeks before its official release date.

Two security bugs were detected in the Microsoft Index Server search engine software found in both Windows NT and Windows 2000.

The first bug could allow a malicious user to view — but not change, add or delete — files from a Web server.

The second could reveal the physical location of Web directories on the server, according to a security bulletin issued recently by Microsoft.

The bulletin also said the two glitches were unrelated except that they both were found in the Index Server.

Feb. 17 Release

Windows 2000 is scheduled to be released Feb. 17. Index Server is a tool designed to allow users to perform fulltext, online searches via a Web browser. It was designed to search Word, PowerPoint and Excel documents, as well as standard HTML documents, according to information on Microsoft's Web site.

The first bug — or the Malformed Hit-Highlighting Argument "vulnerability," as Microsoft calls it — allows users to request information beyond their security access via a specific type of malformed request.

> It's highly possible that someone could take advantage of the vulnerability.
>
> DAVID LITCHFIELD,
> SECURITY ANALYST,
> CERBERUS INFORMATION SECURITY LTD.

"It's highly possible that someone could take advantage of the vulnerability," said David Litchfield, a security analyst at U.K.-based Cerberus Information Security Ltd., which originally spotted the bug. "But it depends on what the ultimate end of the attacker is."

Microsoft's patch does eliminate the problem, said Litchfield, who has installed the patch on his own system. ▶

Gray writes for the IDG News Service in London.

BRIEFS

New Router for SAN

Advanced Digital Information Corp. in Redmond, Wash., has rolled out a Fibre Channel router for its Open SAN Backup Solutions product line. The FCR 250 Fibre Channel router offers one Fibre Channel connection and two SCSI channels. It manages data transfers directly between disk and tape without moving data through servers. Pricing begins at $8,995.
www.adic.com

R/3 for Aerospace

SAP AG last week announced an application upgrade that will let users in the aerospace and defense industries buy aircraft parts via the Internet. The upgrade is due to start beta testing next month. The new release of the aerospace version of R/3 and SAP's other business software adds support for the XML content-tagging language and a set of e-commerce specifications developed by the Air Transport Association, an airline trade group based in Washington.

Pricing and a shipment schedule weren't disclosed.
www.sap.com

SCT Upgrades Apps

Systems & Computer Technology Corp. (SCT) in Malvern, Pa., this week plans to announce upgrades of its enterprise resource planning (ERP) and supply-chain applications for process manufacturers. The Adage ERP system and Fygir supply-chain software have also been integrated with a Web-based sales application that SCT announced last fall. Pricing for the full suite, called iProcess.sct, starts at about $250,000.
www.sctcorp.com

Open-Source Web Site

Ecrix Corp. in Boulder, Colo., and the Linux Fund last week formed OpenTape.org, a nonprofit Web site that supports open-source software. Users have access to technical information about data backup hardware and software for the Linux operating system. Resources include end-user product reviews, discussion boards and links to sites hosting open-source development projects. The Linux Fund is a nonprofit organization in Portland, Ore., that supports Linux programmers with development grants and university scholarships. Ecrix is a private tape-storage developer.

Agile Boosts Buyer Software

San Jose-based Agile Software Corp. announced an upgrade of an application that automates the purchasing of production materials for makers of high-tech equipment and medical devices. Agile Buyer 5.0 can now be distributed across multiple Web servers and integrated with Agile Anywhere, a companion application that tracks bills of material and other product data. Pricing starts at $250,000.

Agile also will announce plans to add auction capabilities and other services to a new Internet portal it launched early last month.
www.agilesoft.com

TECHNOLOGY

Lucent Apps to Enable Message Access Without PCs

BY DOUGLAS F. GRAY

Lucent Technologies Inc. announced plans to market to service providers later this year two new applications that will allow customers to access e-mail, voice mail, faxes and instant messages without a PC.

Using Lucent's Internet Message Management and Voice Browser applications, end users will be able to access their messages using personal digital assistants, fixed-line telephones or mobile telephones, the Murray Hill, N.J.-based company said in a statement last week.

Both applications are based on Lucent's Mobile Communications System for service providers.

Internet Message Management will allow subscribers to decide what messages they receive and when they want to receive them. For example, users expecting an important message could configure the manager to receive messages only from a specific sender.

Users will also be able to receive attachments both in file and voice formats. The attachments could either be converted to speech and then read to the user or redirected to a fax machine, Lucent said in the statement.

Voice Browser will allow mobile users to access personalized Web sites over the phone using Lucent's voice-recognition software. By using voice commands, users will be able to obtain information such as stock quotes, traffic reports and local news from the Internet, in addition to having the information read to them using text-to-speech translation technology.

Internet Message Management will be available to service providers in North America, Europe and Asia in U.S. English in the third quarter of this year. U.K. English, German and French will follow. Voice Browser will be available in North America in the second quarter of this year, the company said.

In related news, Lucent also announced the launch of a new network monitoring and management system to enhance performance and reliability of packet-based and IP-based networks.

The NetMinder Systems' Packet Traffic Management gives network operators tools to detect and manage events such as network congestion or high packet volumes before they affect customers.

The system collects traffic data every five minutes and graphically displays it. It also sends trouble alerts via e-mail or pagers. ▶

Gray writes for the IDG News Service in London.

Epicor Releases New Tools

Epicor Software Corp., an Irvine, Calif.-based vendor that sells ERP applications for midsize users, has released an upgrade of its software for maintenance and repair departments in industries such as aerospace and general aviation. The Impresa 7.0 upgrade includes new tools for use in developing tailored maintenance plans for individual aircrafts or fleets of vehicles. The user interface has also been redesigned, Epicor said. Pricing ranges from $3,000 to $7,000 for each end user.
www.epicor.com

Security Linkup

KyberPass Corp. in Ottawa and RSA Security Inc. in Bedford, Mass., have announced a relationship created to foster secure electronic-business transactions. As a provider of public-key infrastructure-enabled security middleware, KyberPass has received "RSA Secured Keon Ready" certification from the RSA Secured strategic partner program. The certification was designed for the KyberPass 4.0 suite of products and allows KyberPass to perform digital certificate management functions with RSA Keon software. The certification also grants compatibility between RSA Security's technologies and public-key infrastructure products and KyberPass solutions.
www.kyberpass.com
www.rsasecurity.com

TSI Out, Mercator In

TSI International Software Ltd. in Wilton, Conn., recently announced several business-to-business integration tools, including an e-commerce broker and software that can tie existing corporate systems to the Web. Pricing for the full Mercator E-Business Broker suite starts at $400,000.

TSI (which recently changed its name to Mercator Software Inc.) is one of the many vendors jockeying for position in the application integration market.
www.mercator.com
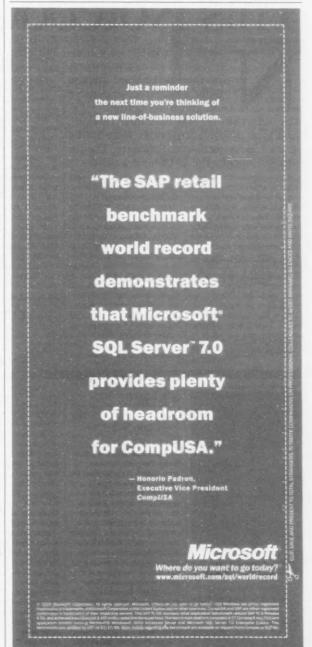
PeopleSoft Upgrade

PeopleSoft Inc. in Pleasanton, Calif., has released an upgrade of its business analysis software with new support for accessing the applications from Web browsers. New applications are being added for analyzing human resources data and monitoring corporate performance, using Balanced Scorecard techniques. PeopleSoft also released an Internet-enabled version of its development tools.

Pricing wasn't disclosed.
www.peoplesoft.com

I2 to Host Apps

Irving, Texas-based I2 Technologies Inc. recently said it plans to launch an Internet-based application hosting service for retailers and consumer-packaged-goods companies by the end of next month. The hosted applications will be part of i2's TradeMatrix online exchange. It will support functions such as demand forecasting and business collaboration. I2 also said it's working with Los Angeles-based Fasturn Inc. to set up an online marketplace for apparel and textile companies.
www.i2.com

Don't Steal This Notebook!

BY DAVID ESSEX

NOTEBOOK COMPUTERS are obvious and attractive targets for thieves because they're easily concealed, expensive and likely to contain valuable information. Statistics bear this out. Last year, 303,000 notebooks were stolen in the U.S., according to Safeware, The Insurance Agency Inc. in Columbus, Ohio.

It's no surprise that a small industry exists to prevent the loss of notebook hardware and data and to help with their recovery. You can lock down notebooks with special hardware or install alarm systems that can tell when portables are being carried out the door without authorization. You can tighten data security by replacing typed passwords with smart cards and biometric authentication or use special software to track down lost computers. I tried three different approaches that are likely to appeal to senior-level road warriors: a portable alarm, a tracking-and-recovery software/service hybrid and voice-verification software.

It's hard to pick one best approach. I recommend Bellevue, Wash.-based Absolute Software Inc.'s CompuTrace tracking product if you've got a large fleet of notebooks and concerns about loss due to unreturned loans, inadequate asset-management procedures and carelessness. Anaheim, Calif.-based Targus Inc.'s Defcon 1 alarm makes sense if expensive equipment is of equal or greater concern than loss of corporate data. If you're paranoid about carrying around secrets and less concerned about hardware costs, Tampa, Fla.-based SAFLink Corp.'s SAFtyLatch reduces to nearly zero the chances that someone other than you will read your most precious files.

The hardware is what most people value, according to Ken Dulaney, an analyst at Gartner Group Inc. "I've heard of people getting fired for losing things," he says.

Dulaney predicts that fingerprint recognition will be a winner for data loss prevention, but he dismisses theft-prevention gadgets. He says Stamford, Conn.-based Gartner bought an alarm for every notebook user, but they mostly fell into disuse.

"The No. 1 deterrent is training," Dulaney says. "Make employees aware of the dangers, be explicit about their responsibilities and hold them to those responsibilities." ▶

Essex is a freelance writer in Antrim, N.H.

CompuTrace 6.21

Absolute Software Inc.
www.absolute.com
$79

CompuTrace is a lot like LoJack for computers. But unlike the radio-based service for tracking down stolen cars, CompuTrace sends its "here-I-am" signal over phone lines (just-released Version 7.0 also uses the Internet) to Absolute Software's offices. A 64KB program, which the company says can't be deleted, stealthily detects the presence of a phone line and calls a monitoring center every seven days, without making a sound or changing the screen. My phone's indicator lights showed something was happening, but that was all. Absolute Software says it's working to control all external indications of the call.

CompuTrace also doubles as an asset-tracking program, since many notebooks aren't actually stolen, just misplaced. You go to a special site to view the electronic serial number, model name, manufacturer's serial number and other identifying information you choose, for each system that has the software. Phone numbers recently dialed from the system can give you an idea where the misplaced machine may be. Report a unit stolen, and a recovery team works with law enforcement officials to find it at no extra charge, sneakily downloading to the system instructions to dial in every 15 minutes or so.

CompuTrace can be tricky to set up because it sometimes requires new modem and Windows telephony settings. But it's a feasible theft-recovery tool that also makes a handy asset tracker for information technology.

SAFtyLatch 1.05

SAFLink Corp.
www.saftylatch.com
$59.95

Biometric security replaces alphanumeric passwords with unique personal characteristics, such as fingerprints or iris patterns, and it's poised to take off. Standards are in the works, and IBM, Intel Corp. and Microsoft Corp., among others, are getting behind it.

Until notebooks have fingerprint readers built in, perhaps later this year, one of the more practical biometric security approaches is voice-verification products that use the notebook's microphone and sound card. I looked at SAFtyLatch, which also comes with a microphone in case your notebook lacks one. SAFLink's software also works with other types of biometric input.

SAFtyLatch sets up quickly. You install the files, test the microphone, record, "My voice is my password" three times, then verify the recording one final time. Verification software from Ieper, Belgium-based Lernout & Hauspie Speech Products NV, which develops speech-recognition software, analyzes the recording for unique patterns. From then on, instead of typing a password, you speak the phrase (your "SAFtyPIN"). If it matches the approved pattern, you're in; anyone else gets rejected. SAFtyLatched file folders are encrypted with ultra-secure 448-bit Blowfish technology, although it's not possible to secure individual files.

I got two false rejections, less serious than false positives and no more inconvenient than mistyped passwords. SAFtyLatch is also an easy way for home users to keep kids from accidentally deleting important files, and you can set up multiple SAFtyPINs. It's more secure and easier to manage than traditional passwords, and a lot more fun besides.

◀ Defcon 1

Targus Inc.
www.targus.com
$49

The idea behind the Defcon 1 alarm, like any theft alarm, is simple: Scare and embarrass the perpetrator while exposing his identity to bystanders. Gartner analyst Ken Dulaney says the problem with such alarms is that they're too likely to embarrass their owners if used incorrectly. To remedy this, Targus recently changed Defcon 1 to incorporate both high and low sensitivity levels, so it goes off within two and eight seconds, respectively, of detecting excessive motion. Before reaching that "alarming" stage, it'll chirp at every bump and vibration. The old version went off immediately, and people complained, Targus acknowledges.

To arm the battery-operated Defcon 1, which is the size of a cell phone, you thread its adjustable 4.7-ft. cable through a metal loop on your carrying case or through the included Security Lock Adapter, which plugs into the little lock slot on most notebooks. Dial your four-digit combination, plug the other end of the cable into the lock port, press a button once or twice, and the Defcon 1 flashes an LED to tell you it's working. If triggered, the alarm sounds for 45 seconds, and the Defcon 1 rearms itself. You turn the alarm off by dialing your combination and pressing a release button. The Defcon 1 can also be a plain old lock and cable, a whole theft-prevention category by itself, but with the advantage of sounding the alarm if anyone tries to cut the cable or tamper with the setup.

My Defcon 1 worked exactly as advertised. The directions are clear, and it takes only seconds to understand how to work the few moving parts. And oh, yes, the 110db alarm is loud and piercing, and not much quieter if you try to muffle it with your hand.

DEFCON

Status

Accurate Motion Alarm

Digital Subscriber Line

BY MATTHEW HAMBLEN

IT WAS CLEAR that Digital Subscriber Line (DSL) technology would start catching on at some point with small and medium-size business users as a way to speed up bandwidth in PC networks.

This technology uses traditional copper phone lines to provide dedicated, always-on access to the Internet. It's ideal for remote workers and telecommuters who want to send e-mail or browse the Web at speeds comparable to those available to workers at corporate headquarters, says Brett Sheppard, an analyst at Telechoice Inc. in Denver.

While there might be a business case for using DSL in a corporate headquarters, it would probably be limited to supplementing T1 service when another T1 line isn't needed, Sheppard says.

But DSL's main market play will be as a way to give fast connections to telecommuters and branch and small offices, Sheppard and other analysts say. Still, because DSL depends on phone lines, it will be more natural for a business to consider than a cable modem connection, simply because coaxial cable has been installed principally in residential areas.

DSL vs. Cable Modems

The installed market for cable modem lines in the U.S. and Canada was 1.4 million in October. That's more than four times the number for DSL, which runs to 307,000 homes or businesses, according to Sheppard and cable modem analyst Michael Harris at Kinetic Strategies Inc. in Phoenix.

Sheppard says he expects the DSL rate of growth in the U.S. to be faster than that of cable, adding that he expects the two to even out in 2002.

But Harris says he believes cable modems will win out in 2002 by 20% (see chart). He adds that his figures are conservative because American Online Inc.'s recent purchase

> ## DEFINITION
>
> **Digital Subscriber Line** technology pumps data at high bandwidth to PCs in homes and small businesses, using ordinary copper telephone lines. Theoretically, data rates could be as high as 8.4M bit/sec., dwarfing 56K bit/sec. modem connections in many PCs. Typically, however, the data rate is 500K to 1.5M bit/sec., which is competitive with cable modem connections without the need for a coaxial cable to a desktop PC.

of Time Warner Inc. could accelerate interest in cable modems.

Sheppard and Harris say the size of the market for both technologies should matter to information technology managers who want plenty of reliable service providers throughout the U.S. to choose from when setting up service for telecommuters. Despite all

cluding home-based businesses and telecommuters, Sheppard and Harris say.

Among the factors that IT shops must consider in arranging DSL service is whether it can actually reach a telecommuter — the end user probably needs to be within about 3 miles of a service provider's central office. Sheppard also says some DSL service can cre-

DSL vs. Cable Modems: Both Will Grow

Projections for DSL vs. cable modem lines in the U.S.

SOURCES: DSL FIGURES TELECHOICE INC. DENVER CABLE FIGURES KINETIC STRATEGIES INC. PHOENIX

the buzz about the popularity of fast Internet connections, DSL and cable modems are currently available to only about one-third of U.S. users.

Still, DSL is offered in every large urban area, with multiple providers, Sheppard says. About a third of the users are businesses, not counting those in homes, whereas cable is almost completely restricted to residential neighborhoods, in-

ate static problems for voice calls running over the same copper line, and data calls can experience a dropped signal or reduced speed. Service providers can run a check, and IT shops should weigh the results of those checks.

IT managers may need to have the service provider run a loop qualification test in older buildings, because the copper twisted-pair line from the

street to the PC might be old and need to be replaced. That can cost hundreds of dollars in a high-rise building, a cost the user or his employer will probably have to pay.

Still, the average DSL installation costs about $100. Monthly fees for lower-speed services at 256K bit/sec. range from $40 to $50, which is comparable to cable modem fees.

Some PC makers are beginning to install DSL modems inside their boxes, making installation even simpler than before. By fall, some DSL service providers will offer packetized voice-over-DSL service, which could be valuable for small businesses that want to run up to 24 digital voice connections over a single copper line at the cost of the single line, Sheppard says.

Despite all the promises of speed from cable and DSL, Harris says, some users who expect 2M bit/sec. speed will still be slowed down over portions of the Internet backbone, which might reach speeds of only 500K bit/sec. Both technologies are really speeding up connections only locally for the "last mile" from a service provider's central office to a home or business, sometimes employing fiber-optic cable in addition to either coaxial or copper cables.

Though just a year ago some DSL installations might have taken several weeks, the industry now averages one to three weeks, Sheppard says. Sometimes a service provider can

turn on DSL service without even sending a truck to a home.

Sheppard says the following are key considerations for an IT group shopping for DSL:

■ Look for a service provider guarantee of bandwidth within the stated price.

■ Weigh other service-level guarantees, such as uptime and payment procedures for downtime.

■ Seek around-the-clock phone support for the service, not just Internet support.

■ Consider whether the service provider offers DSL in all parts of the U.S. where your company has operations, so all workers can be equally productive and billing can be centralized.

■ Ask whether the service provider will be offering packetized voice-over-DSL or video services for teleconferencing. ▶

Flavors of DSL

Few abbreviations have spawned as many terms as DSL. Here's a rundown of some of the terms we've seen:

ADSL Asymmetric DSL, which has high-speed downloads but slower uploads

DSL-Lite Limits download speed to 1M to 1.5M bit/sec. and uploads to 100K to 200K bit/sec.

DSLAM Digital Subscriber Line Access Multiplexer, which concentrates many ADSL subscriber lines on a single Asynchronous Transfer Mode line

HDSL High data-rate DSL, capable of T1 or E1 speeds

ISDL DSL that uses ISDN technology to deliver 128K bit/sec. to an IDSL modem bank

RADSL Rate-adaptive ADSL, where modems test the line and adapt their speeds accordingly

SDSL Symmetric DSL, which has equal upload and download speeds

VDSL Very high bit-rate DSL, which has speeds of 12.9M to 52.8M bit/sec.

xDSL A way to refer generically to types of DSL

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BLAME GAME

Application-monitoring tools could solve performance problems. Or they could just add finger-pointing to your troubles. By Sami Lais

About the only thing worse than poor application performance is being responsible for causing poor application performance.

That may be why performance-monitoring tools seem to have gone from being tools that detect problems to being tools that help place blame. And that could prove dangerous, experts say, because improperly used tools can confuse more than help and may themselves cause service degradations.

Service degradation cost an average large enterprise $1.4 million in productivity and $900,000 in lost revenue in 1998, according to Infonetics Research Inc. in San Jose. Last year's electronic-business explosion will only make things worse, says Michael McConnell, lead analyst.

And while more business is conducted on private and public networks, the networks and applications running on them are becoming larger and more complicated, McConnell says. That service degradation is almost certainly

ALAN LEVENSON

TECHNOLOGY

underreported. "If you're unable to get e-mail, you call and complain, but if it's a little slow, people are a bit more patient."

Fine-tuning enterprise performance has become critical. Performance-monitoring tools, which can quickly track down the cause of a slow response, have become mainstays on most corporate networks.

"Application performance is becoming especially important as companies start outsourcing their applications to application service providers [ASP]," says Gene Leganza, an analyst at Giga Information Group Inc. in Cambridge, Mass. "You need some sort of measurement to prove that service-level agreements are actually being delivered. If the ASP supplies the data, you have some legitimate questions about its validity. That's why independent performance monitoring is becoming so vital."

But "too often, [these] products are sold to let you deflect blame," says Jim McQuaid, director of monitoring solutions at Ganymede Software Inc. in Morrisville, N.C. "People are told, 'Buy this product, and you can produce data to prove your network or whatever is not what's at fault,'" he says.

"Lately, that's the marketing message that a lot of these vendors are delivering," says Leganza. "Some people see these tools as a nice, safe way to say, 'It's not me, go bother somebody else.' "

Ironically, these tools can also exacerbate performance problems. "Some types of monitoring tools are meant to run all the time, and they've been tuned to have minimal impact," Leganza explains. "Others put a much bigger load on network resources, but they're only meant to be used for a short period. If you run them continuously it can seriously degrade the network."

And without correlation and context, data on network and application performance is near meaningless, warns network analyst Bernie Davidovics at Predictive Systems Inc. in New York. Take a number like 90% server utilization. "Is that good or bad?" he asks. If the server is doing backup, the number represents a good use of resources. If it's doing online stock-trading transactions, it's treading too close to failure. You should focus on discovering end-to-end response time and availability from the user's viewpoint, a measurement that "has been the Holy Grail of network monitoring," says Davidovics. And although the lines between network and application-monitoring software are blurring, "no single approach delivers everything," he says.

"It's surprising how often these tools are just thrown on the network without much thought as to what's needed," says Leganza. "They collect too much data, or the wrong data," and could wind up adding another layer of bottlenecks.

"Vendors are certainly aware of what can happen, and they supply guidelines on how to minimize impact and maximize accuracy," says Leganza. "It sounds obvious, but the best advice I can give is 'Read the directions.' " ▶

> "
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>
> **PAUL RAJEWSKI, CHAIRMAN AND CEO, JEWELRY.COM**

Performance Trackers

A tiny dot-com and a major insurance company faced radically different network problems: One needed to keep online customers satisfied – by not waiting – during the busy holiday season. The other needed to make sure his ASP delivered what it promised. Both used application-monitoring tools to resolve potential problems.

At 4-month-old Jewelry.com – a 100% pure dot-com business – Chairman and CEO Paul Rajewski says he marshaled his tiny El Segundo, Calif., staff to build a Web site to sell retail jewelry. They used e-commerce software from San Francisco-based Intershop Communications Inc. and linked it to the company's Sybase Inc. databases for a mid-November launch.

Jewelry.com "needed to make sure customers were getting good response time at our site," Rajewski says. But the start-up had minimal staff and resources to handle the crucial monitoring of its Web site, Internet and ASP.

Vendors and providers spent too much time shifting blame instead of providing numbers, Rajewski says. So "we got the guys at Candle [Corp.] to ping our site and give us reports on performance. Then we compared the data to the volume we were experiencing," he says.

Reports from Candle's CandleNet eBusiness Assurance Network 2000 correlating customer response time and usage to server performance showed the big problem wasn't hardware or software, but the Internet itself, says Rajewski.

Jewelry.com quickly switched providers, choosing San Francisco-based Digital Island Inc., which offers Web caching at multiple sites nationwide. The move solved many underlying problems, he says.

CandleNet relies on network, server and application-performance data collected by its ServiceMonitor Web application-monitoring software to supply technical and business process-oriented reports. Based on a Java applet, it activates when a user enters a Web address, measuring the time it takes for the data to get from user to Web server and back. Candle then analyzes and warehouses the data. Users access these performance reports, presented in Web format, through a virtual private network linked to a Candle Web site.

During the holiday shopping rush, CandleNet reported a linkage problem, Rajewski says, "and we tracked it down to a lost [SprintNet] router near our hosting site."

"The knee-jerk reaction you get when something goes wrong is, well, it's not us," Rajewski says. "If you can come in with real data that says, 'Yeah, it is you,' it changes the whole conversation, and your credibility goes through the roof."

Rajewski says he plans to expand reporting to include users' browse times and clickstreams as well as how long it takes each object on his company's site to download on the user's desktop. "That's going to be useful information. We're launching into Phase 2 of our operation," he says.

CIO James Barry oversees the complex enterprise systems at Insurance Holdings of America's Consumer Insurance Division in Beverly, Mass. Those include a 300-seat call center and 1,100 local and remote desktop users nationwide linked via an extranet at more than 100 sites, some no more than a booth at bulk retailer Sam's Club stores.

The complexity extended to the networks. "We have a significant IP infrastructure" as well as some asynchronous transfer mode (ATM), frame-relay and gigabit Ethernet networks, says Barry.

His staff – six or seven people who cover three shifts to provide around-the-clock coverage – was at its limit. Now they had a new problem: Monitor the performance of an insurance-selling application hosted by an ASP.

Stopping the finger-pointing was more difficult for Barry than for Rajewski. Barry chose the Vital monitoring package from International Network Services (INS) in Sunnyvale, Calif. His team deployed Vital-Agent to all 1,100 desktops for network events monitoring. The 4,000-byte-size agents collect data and send it to a Vital-Console at headquarters in Beverly. Barry's team is also using the VitalHelp, VitalAnalysis and Enterprise Pro components.

But the company's "core business application is homegrown, and there was no tool on this planet that could monitor it," Barry says. Using VitalSuite's Transact tool kit, "we built hooks into our application so we cannot only monitor it, but also tweak performance," he says.

Barry credited INS's services team with a speedy implementation. "We allowed six or seven months for the rollout," he says. "We did it within 30 days." Barry's staff is down to three. The monitoring system replaced six people "sitting there staring at screens," he says.

Vital Suite tracks each transaction and event throughout the system, letting Barry's staff tune performance before it becomes a systemwide problem, he says. "If the same kind of thing happens with five users, it correlates the data and tells me about it.

"I took some grief from financial [on the VitalSuite implementation], until I explained the [return on investment]," Barry says. He says he's planning a convergence project involving voice over IP and ATM, a unified messaging platform and "maybe wireless."

– Sami Lais

SHOPPING VIA TV FINALLY GETS REAL

A British company uses data middleware, messaging and an intelligent information switch to deliver real-time TV-based shopping to more than 2 million homes.
By Jaikumar Vijayan

A MIX OF MESSAGING software and integration technologies is allowing London-based Open Interactive Ltd. to deliver a service that lets users buy everything from hot pizzas to home mortgages over their TVs.

Open Interactive's service, which has been operational since September, lets TV viewers pay bills; do home banking; buy groceries, clothes or furniture; and send e-mail by using portable keypads attached to their TVs.

Making the service possible is a complex system architecture that seamlessly melds satellite data streams, online information feeds, database technologies and messaging software while still providing a familiar, easy-to-use, TV-like user interface.

The service is an example of how to deliver new functions from existing technology with minimal disruption to the user, says Alec Livingstone, group technical director at Open Interactive.

A Comfortable Experience

"The key thing here is that this is not the Internet on TV," Livingstone says. "It is TV as you expect it to be. . . . It is meant to be a very comfortable experience for those who are not PC-literate."

Users interact with the service via menus and a series of on-screen prompts. The digital set-top box creates a series of television pictures that combine video, still pictures and animation created in response to commands from the TV remote control.

While much of what the user sees and interacts with is information stored on Open's databases, the real key to the service is how that information is relayed back and integrated with the back-end fulfillment process.

Open Interactive, formerly known as British Interactive Broadcasting Ltd., is backed by British Sky Broadcasting Group PLC (BSkyB), British Telecommunications PLC and Matsushita Electric Europe Ltd. Its service is available free to subscribers of BSkyB's SkyDigital service. The service is currently available in more than 2 million homes and should reach more than 14 million households within five years.

The biggest challenges of putting together a service like this were the amount of integration needed between the multiple systems and the need to make it flexible enough to handle both real-time and batch orders.

For instance, while some of the 36 providers selling services over Open — such as Domino's Pizza — require orders to be relayed to them instantly, others may only need to receive batches of orders at preset intervals, Livingstone says. Providing much of that flexibility is a sophisticated rules-based "information switch" that sits at the center of Open's system architecture. The switch collects, processes, refor-

mats and routes messages between users and providers of services.

Users transact with Open via a secure satellite link between their Sky-Digital set-top box and Open's online servers. The set-top also maintains customer information including credit-card numbers and postal addresses.

Order information is collected, queued and routed from the set-top boxes to the information switch or, as Open calls it, the Context Provider Gateway, using an Oracle database and Oracle Advanced Queuing (AQ) technologies. The software on the Gateway Central System reads and routes the messages to service providers according to built-in rules and conditions.

"Think of it as a hub-and-spoke architecture," where information flows along virtual spokes to a central hub, says Mike Donaldson, worldwide marketing director at Denver-based New Era of Networks Inc. (NEON), a provider of some of the system's core routing and formatting software. It acts "as a switch for routing data in much the same way as a Cisco switch routes network traffic," Donaldson says.

With the information switches, rules can be easily modified or added for directing information flow, says Dave Ellison, chief technology officer at Primark Corp., a provider of online financial information in Bethesda, Md.

Secure Transactions

Like Open, Primark uses IBM's MQSeries messaging software and NEON software to give subscribers customized financial information culled from a variety of real-time, referential and Web-based sources using predefined rules and conditions.

"The benefits of being able to integrate disparate data sets" using a rules-based engine are enormous, Ellison says. "It allows us to tailor our delivery without too much of a burden."

Each message that flows from Open's content gateway is Triple DES encrypted and also has certification features that allow authentication at the receiving end. A Content Provider Gateway remote site system decrypts the messages and zaps them to databases compliant with the Open Database Connectivity (ODBC) standard sitting on host systems that belong to the service provider. The orders are processed from there and sent back over the system to the order's originator.

Much of the core Gateway Central System piece of the Open service is provided by IBM's MQSeries messaging software and MQSeries Integrator and NEON's formatting and rules-based routing software, which works with MQSeries. NEON also provided an interface between Oracle AQ and MQSeries and a similar ODBC adapter to interface between MQSeries and content provider databases. ▶

TECHNICAL DIRECTOR ALEC LIVINGSTONE: Open Interactive's Web TV service is meant to provide "a very comfortable experience for those who are not PC-literate"

One-Stop Knowledge Shop

Start-up KnowledgeTrack hopes to keep knowledge-sharing on track with portals

BY LEE COPELAND

YOU WANT TO create a company-wide public relations campaign that will include information about your firm's products, people and history. But where do you find that information?

At most companies, the answer is: everywhere. But the founders of start-up KnowledgeTrack Corp. say their knowledge management technology can provide employees with a means of gathering people, documents and data into a single virtual location.

CEO Jack Porter and Chairman Bill de Lambert founded the Pleasanton, Calif.-based company in 1998 to create a Web-based portal application that could serve as a central collaboration point within and outside an organization.

Released last June, Knowledge Center straddles the knowledge-sharing and Web publishing fence. It allows users to publish documents in Adobe Portable Document Format files or the HTML Internet programming language, create threaded discussions and collaborate online to create documents.

Centralized Access

The need for a central knowledge-access point prompted Financialprinter.com to adopt Knowledge Center as a core part of its Web-based services. Customers log on to the secure Web site to collaborate on legal and financial documents, says Matt Stodolnic, vice president of product technology at Financialprinter.com, the Web business unit of Conscium Inc. in San Francisco.

"We use [Knowledge Center] to streamline the entire transaction process," says Stodolnic. Any given project, such as filing documents for an acquisition or an initial public offering, may involve several companies, law firms and auditors scattered across the country or the world. With Knowl-

edge Center, the process is completed sooner because each party has access to the current document version. It also helps eliminate the need to send hard copies overnight for approval, Stodolnic says.

"It's easier to manage the data — and the destruction of it, too — from one place," Stodolnic says, because his firm typically deletes the draft version after a final copy of a document is approved. "If a client requires files to be deleted, it's easier to delete it cen-

trally than if we sent out each document in an e-mail to a 30-member working group."

If Knowledge Center takes off, Porter says success will stem from the product's ability to cost-effectively reduce geographic and social barriers to communication.

Analyst Gautam Desai at DocuLabs Inc. in Chicago said the application server architecture of Knowledge Center differentiates it from competing products and helps it scale. The product uses Microsoft Corp.'s Transaction Server and Sun Microsystems Inc.'s iPlanet server for its Windows NT and Solaris versions, respectively.

ACSIA Insurance Services

JACK PORTER, CEO OF KNOWLEDGETRACK, says, "Primarily, we're competing against white papers"

KnowledgeTrack Corp.

Location: 7020 Koll Center Parkway, Suite 110, Pleasanton, Calif. 94566

Telephone: (925) 738-1000

Web: *www.knowledgetrack.com*

Niche: Knowledge Center, a Web-based knowledge management portal product, allows users to share knowledge and create and publish documents on an intranet.

Why it's worth watching: The knowledge management space is brimming with companies, but KnowledgeTrack got an early start.

Company officers:
• Jack Porter, CEO
• Bill de Lambert, chairman
• Brazos Donaho, vice president of engineering and research

Milestones:
• July 1998: Founded

• July 1999: Company launch
• January 2000: Partners with Autonomy Inc. to add personalization and categorization features

Employees: 80

Burn money: $4.1 million from Alafi Capital Co.; $5 million from Knowledge Investments LLC

Customers: ACSIA Insurance Services Inc., Financialprinter.com

Price: $100,000 for server for up to 250 users

Red flags for IT:
• The company is a small fish in a market stocked with well-established players.
• The product lacks user profiling and automatic cataloging, which are slated to be added this year.

Inc. wanted to give its sales force and regional managers a central place to keep abreast of updates on insurance regulations, rate changes and competitive pressures. The Burlingame, Calif.-based long-term care insurance broker has a sales force of 250 in 15 states.

"Our biggest challenge was providing reliable communication to our sales force, most of whom work out of their homes," says Brent Stiggins, vice president of marketing and information systems at ACSIA. "Before, we had to push most of our information out via mail to get to our sales force. And with a commission-based sales force, there's lots of turnover, so keeping track of them was difficult."

ACSIA's sales force and managers use a Web browser to access the intranet site for company-generated updates, regional information and competitive data. But because the system is intended to capture tacit knowledge in addition to explicit knowledge, other challenges lie ahead. "The technical implementation was easy, but the cultural part takes time," Stiggins says.

Typical software applications require minimal end-user buy-in. But for knowledge management projects to succeed, managers must get end users to commit to sharing information.

"There is a whole set of issues with knowledge management that are not resolved by technology," explains Hadley Reynolds, research director of The Delphi Group in Boston. "We've always said that technology is only about 15% of the knowledge management problem. The major challenges are building communities, dealing with intellectual property and employee equity relating to intellectual capital."

One sales region wanted to add complex passwords and access lists in order to restrict access to representatives in that region alone, Stiggins says. "I knew where they were going with that," he says, and so he nipped that potential turf battle in the bud. ▶

[the buzz **]**
STATE OF THE MARKET

Finding Room on The Bandwagon

Every software vendor in the online knowledge management space defines its enterprise portal server differently. But a few components tie all of them together: online document collaboration, centralized access and searching of far-flung data resources, and document publishing. Pricing on Plumtree Software Inc.'s Corporate Portal Server starts at $150,000, and Sequoia Software Inc.'s Interchange 2000 starts at $50,000 per server. Gyphica Inc.'s PortalWare costs $225,000, and Viador Inc.'s E-Portal Suite starts at $125,000.

Microsoft and Lotus Development Corp. have made no secret that they want a chunk of the knowledge management and enterprise portal market, too. Introduced last fall, Microsoft's Digital Dashboard offers a single interface to access local files, applications and data via the Internet.

Raven

Lotus plans to ship its Raven portal server later this year. Raven will offer Web and document search capabilities, automatic creation of end-user profiles and automatic cataloging of data stores. For example, if new data on shock absorbers gets added to a document store, any users subscribing to that data store could be notified via e-mail. The profiling features would also e-mail updates to users of newly added content. Like Knowledge Center, it will most likely support Windows NT and Solaris, but it will also support IBM's AS/400 and RS/6000. Raven has been winning rave reviews from analysts. David Coleman, an analyst at Collaborative Research Inc. in San Francisco, said the Raven features he has seen tackle the technical challenges of enterprisewide knowledge sharing and collaboration.

"We compete a little bit with [Lotus], but primarily we're competing against white papers," says Jack Porter, CEO of KnowledgeTrack. "Right now, they don't have a product offering but a direction." Still, Porter struck a deal with Autonomy Inc. in San Francisco last month to add personalization and cataloging features to Knowledge Center. The new tools will recognize user tendencies to read and submit content on certain topics and prompt them to update their personal pages with this data.

"The problem is, who has the product in the market?" says Hadley Reynolds, an analyst at The Delphi Group. "There is still plenty of room for competition."

– Lee Copeland

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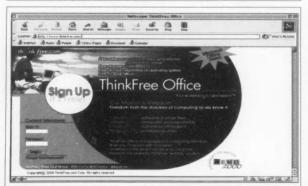
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TECHNOLOGY TRENDSETTERS

Dot-com Delights

Who: Beverly L. Seyfert, chief technology officer

Company: The Serious Collector, San Francisco

Nature of work: Manages implementation and ongoing support of e-commerce Web site, software development and internal office systems

Skills: Software and Web development, experience with network and Internet technologies, project and vendor management abilities

Salary potential: Millions, if the company is successful

Advice: If you get the chance and you're comfortable taking risks, do it!

Dot-com Start-up Veteran

Working at an Internet start-up involves high risk, long days and heavy lifting. Why would anyone do it? Consider the case of Beverly L. Seyfert. . . .

BY BRONWYN FRYER

SHOULD YOU WORK for an Internet start-up? Sure, if the notion of working like a dog suits you. But a few years of indentured servitude at a high-risk dot-com may well be worth it: If part of your compensation includes start-up stock and the company does well, you could spend the rest of your life on a beach in Tahiti.

Here, we profile an information technology veteran who has cast her lot with an Inter-net start-up, to discover what it takes to work for a new dot-com. Her story might help you determine whether such a working environment is right for you.

NAME AND TITLE: Beverly L. Seyfert, chief technology officer.

EMPLOYER: The Serious Collector Inc. (*www.seriouscollector.com*) in San Francisco, a company that sells and auctions fine antiques, collectibles and art over the Web.

NATURE OF HER WORK: Seyfert implements, manages and supports the company's e-commerce Web site and oversees software development and internal office systems.

SKILLS AND EXPERIENCE SHE BRINGS TO THE JOB: Seyfert was previously a vice president at Irving, Texas-based GTE Internetworking. There, she oversaw a business unit responsible for implementing e-commerce and custom Web-hosting services for U.S. and international clients.

"I've got a strong background in management, project management, networking and Internet technologies," she says. "I've got to be able to wear both an executive hat and a technical hat." Presentation skills are also important, Seyfert adds.

HER IMPACT: No Seyfert, no company. "I *am* the IT organization. I work with our vendors to manage and maintain the site. I oversee software development and write code myself. I research and implement new technologies."

WHY IT'S INTERESTING: "We're building a community site where professional art and antique collectors can avoid Beanie Babies or garage-sale items. We also need to continually evaluate our customers' requirements and expand our services, which means constantly enhancing the site."

SKILLS AND EXPERIENCE REQUIRED: Seyfert has a strong background in networking and Internet technologies, "and that's something I use every day," she says. "I've got many years of managerial experience, and I put it all to use here. Project management is critical."

SALARY, BONUSES AND PERKS: At the moment, the salary is "minimal," though she expects that rounds of venture funding will change that. Seyfert says she enjoys being able to walk to work.

TOUGHEST CHALLENGE: It can be difficult working with a minimal budget, and there's always the fear that the company might be beaten out by competition.

GREATEST REWARD: "For me, the greatest draw is the equity — the chance to get in on the beginning of a company that could make me a millionaire."

FUTURE OPPORTUNITIES: Boundless. "Working for a very small company gives you the chance to work in other areas that you may not have been exposed to in the past — like marketing and advertising. That sort of broadening is valuable wherever you work."

ADVICE: "To succeed in this sort of company, you've got to be a risk-taker. There's no safety net — if the company folds, you're out on the street." ▶

Fryer is a freelance writer in Santa Cruz, Calif.

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WEEK IN STOCKS

GAINERS ⬆

PERCENT

Tricord Systems	45.6
Cognos Inc.	40.5
Businesss Objects S.A. (H)	37.1
Xilinx (H)	32.1
Amazon.com Inc.	31.7
Qualcomm	29.4
Aspen Technology Inc. (H)	28.9
TenFold Corp. (H)	28.8

DOLLAR

SGS-Thomson Microelectron. (H)	47.13
Yahoo Inc.	42.06
Qualcomm	31.75
Juniper Networks Inc. (H)	28.31
Businesss Objects S.A. (H)	27.63
Texas Instruments (H)	25.94
Network Appliance Inc.	25.75
Sony Corp.	25.25

LOSERS ⬇

PERCENT

Wink Communications Inc.	-17.2
Keane (L)	-16.3
Quest Software	-15.7
Red Hat Inc.	-11.2
Storage Technology (L)	-11.0
Procom Tech Inc.	-9.7
Ciber Inc.	-8.8
American Mgt. Systems	-8.3

DOLLAR

Quest Software	-15.38
Red Hat Inc.	-12.00
Wink Communications Inc.	-10.50
Keane (L)	-4.56
Macromedia Inc.	-3.94
Sapient Corp.	-3.69
Veritas Software Corp.	-3.13
NEC	-3.00

PC Market Grows But Squeezes Margins

Dell, Gateway pushed to diversify their businesses

BY JAIKUMAR VIJAYAN

A GROWING squeeze on PC profit margins should lend greater urgency to efforts by Dell Computer Corp. [Nasdaq:DELL] in Round Rock, Texas, and Gateway Inc. [NYSE:GTW] in San Diego to diversify into higher-margin areas this year.

INDUSTRY ALMANAC

Both companies are more exposed to tightening profit margins than other major PC vendors such as Hewlett-Packard Co. [NYSE:HWP] and IBM [NYSE:IBM], whose portfolios of products and services are much broader and could make up for shortfalls in the PC market, analysts say.

PC sales last year grew by 22% — one of the biggest annual jumps ever — with worldwide shipments topping 113 million units, according to Dataquest in San Jose. But that growth will slow by 4% this year, with businesses more interested in buying smaller, less expensive products, the report predicts.

Dell and Gateway closed the books on calendar 1999 with strong revenue and unit growth but declining profit margins during the fourth quarter.

Dell, which will announce its results Feb. 10, has warned analysts of lower-than-expected profits for its fourth fiscal quarter ended Jan. 28. Dell expects to make a profit of $430 million, or 16 cents per share. Wall Street had projected a profit of 21 cents per share.

Similarly, Gateway's fourth-quarter earnings of $126 million were down 5% from the same period last year.

Dell's stock price, at $38.12 per share Feb. 3, was down 29.3% from a year ago. Gateway's stock price, meanwhile, rose 52.23% to $59.75 — though that's down from a high of $84 in mid-November.

Dell and Gateway blamed Y2K-related system lockdowns and component shortages for the fourth-quarter slowdown. But a continuing corporate trend toward buying cheaper client devices could put the squeeze on PC profit margins, analysts say.

Both companies are taking a number of steps to diversify their business by offering higher-margin integration and support services and by bundling Internet services with their boxes, says Laurie McCabe, an analyst at Summit Strategies Inc. in Boston.

IBM and Compaq Computer Corp. [NYSE:CPQ] also announced sharply lower margins and revenue from their PC businesses, though a larger percentage of their revenue comes from higher-margin products and services. ▶

Top U.S. PC Vendors

PC sales experienced one of the biggest annual jumps ever in 1999

■ UNITS SOLD (MILLIONS)
● MARKET SHARE (%)

	DELL	COMPAQ	GATEWAY	HP	IBM
Market Share	16%	15.7%	9.1%	8.7%	7.2%
Units Sold	7M	6.8M	3.9M	3.8M	3.1M

SOURCE: DATAQUEST/GARTNER GROUP INC. SAN JOSE

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KPMG Plans IPO To Retain Talent

Hopes stock options boost competitiveness

BY JULEKHA DASH

IN A MOVE to prevent top talent from jumping to Web start-ups, Big Five accounting firm KPMG Peat Marwick LLP last week set up a separate Internet integration services unit that it hopes will make an initial public stock offering.

Jim McGuire, chief marketing officer at New York-based KPMG, said he's "cautiously optimistic" that government regulators will approve plans for an initial public offering (IPO) in the unit, KPMG Consulting Inc., and he added that he hopes the process is completed in 90 days.

McGuire said offering stock options would distinguish KPMG from other consulting firms and help the company "compete against Silicon Valley start-ups."

McGuire also said he hopes that stock options could help the company retain top people. The valuations of Internet companies have "produced tensions in terms of being able to retain partners," said McGuire, who added that the Big Five have had some high-level defections.

A KPMG spokesman said the company's turnover rate was 20% in 1999. That's on the high end among Big Five firms, which have been averaging 15% to 20% per year, according to Kennedy Information Research Group in Fitzwilliam, N.H. The number has been creeping up in recent years, said Joshua Randall, an analyst at Kennedy.

The new entity will be 80% owned by KPMG and its partners and 20% owned by San Jose-based Cisco Systems Inc. In August, Cisco agreed to invest $1 billion in KPMG. Since then, KPMG has added almost 2,000 consultants and plans to add another 2,000 in the next 18 months. Under the deal, KPMG will deliver e-commerce services to Cisco clients.

Going public would benefit KPMG clients if it meant fewer personnel changes would occur midstream during client projects, said Albert Nekimken, a senior analyst at Input, an information technology research firm in Vienna, Va.

Nekimken said he's less enthusiastic about the partnership because it could pose a conflict of interests. "If the problem-solver has a preferred arrangement with a certain supplier, then you have to wonder" whether the services company is selecting the best technology, said Nekimken. ▶

Talent Lure

$52,000 salary, a $4,000 signing bonus and $1,500 for relocation.

But Fajkowski said it wasn't the money that sold him; it was the work environment.

Employees can dress "business-casual" when they aren't visiting clients, said Fajkowski, adding that he got the impression that the company encourages open and honest communication.

How could he tell? Fajkowski asked employees: "What would you do if you knew you were going to be late on a project?" He said he was impressed that most said they would tell the client as soon as possible, rather than try to hide the fact.

Giving students a positive impression of the work environment is especially crucial for large companies, as technology start-ups gain more cachet from highly publicized stock offerings.

"Last year, a lot of my friends were looking only at big consulting companies," said senior Su Cheng, a business major with an MIS concentration at the University of Virginia in Charlottesville. "Now, a lot of my friends interview at start-ups and don't even bother with the larger ones."

Some students may base their choice on stock options. But Fajkowski said the fact that AMS didn't offer stock options was "no big deal."

He was courted by large multinational companies such as Raytheon Co. and TRW Inc., but he said he felt those companies were more bureaucratic. "I got the impression that there was a certain way to do everything," he said.

Julie Cunningham, manager of global college relations at Tellabs Operations Inc., said the Lisle, Ill.-based company tells students that it offers sporting events, picnics and anniversary celebrations.

"New graduates often want more from a company than just sitting at their desk," Cunningham said. Last year, the company doubled the number of recent college graduates it hired to 100.

One way companies can make a lasting impression on students is by wining and dining them, said Tim Little, a computer science major at Valparaiso University in Valparaiso, Ind. Little told all his friends about one credit-card company that treated students to dinner and an overnight stay in a five-star hotel. ▶

Culture Clash

based technology arm of Macys.com parent Federated Department Stores Inc. — share the same vision, Jacobson added.

Macys.com located its cyberstore staff in San Francisco to have a better shot at attracting talent. But the dot-com operation funds 15 staffers who work for FSG and plans to add another 20 FSG staffers to the San Francisco operation. Those FSG staffers program connections to the host systems and serve as liaisons and advocates on the dot-com's behalf, Jacobson said.

"I think it was the best way to handle the situation, given the potential for the natural conflict that exists between IT and rapid application development [groups]," Jacobson said.

"Rapid application development is not part of the vocabulary of the traditional IT organization. You're creating stuff in a hurry and putting it up on a Web site and fixing it later. It's not the way these guys are trained," he explained.

Mary Jean Raab, a senior vice president at Borders Group Inc. in Ann Arbor, Mich., acknowledged that culture clashes do exist — "between the online people, between the finance people, the IT people." But she maintained that the national bookseller has been able to manage the clashes by using leadership meetings and team meetings to ensure that each group works collaboratively.

Nordstrom.com's Schwartz, who has a separate IT staff, said traditional IT departments have big responsibilities and react to priorities set by the business managers. Dotcom staffs have to move faster than that, always "pushing, learning and changing with the times," Schwartz said.

Classic IT staffs will need to reinvent themselves now that more than 50% of IT spending is outside the control of the IT shop, Rubin said. They will need to change their focus from systems maintenance and support to systems transformations and systems integrations, he said. ▶

MOREONLINE

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www.computerworld.com/more

Big Moves by Big Five

AUGUST 1999
- Cisco Systems announces that it will invest $1B in KPMG

DECEMBER 1999
- Ernst & Young and Cap Gemini discuss merging consulting business
- Andersen Consulting announces it will pour $1B over five years into a venture capital unit that will fund Internet businesses

FEBRUARY 2000
- KPMG incorporates consulting business for IPO
- Ernst & Young eliminates 400 jobs, or 5% of its consulting business

Perks Wanted

Which benefit do you desire most? Responses from college students and recent college graduates.

Benefit	%
Flexible hours	34%
Stock options	19%
More vacation time	13%
Ability to telecommute	13%
Better health plan	12%
Large signing bonus	9%

SOURCE: JOBTRAK.COM. BASED ON 3,200 RESPONSES. NO MULTIPLE RESPONSES ALLOWED

THE BACK PAGE

FRANK HAYES

The eyes have it

I DIDN'T MAKE IT to last week's LinuxWorld conference (actually, it's just starting in New York as I write this). But the week before, I had a long conversation with Eric Raymond. Raymond is sort of the Fred Brooks of open-source software. In 1975's *The Mythical Man-Month,* Brooks explained why we have trouble making big projects work — too many programmers eventually can't communicate with one another. In his 1997 essay "The Cathedral and the Bazaar," Raymond explained why despite "Brooks' Law," Linux's tens of thousands of loosely linked programmers are an advantage, not a drawback.

Put simply: It's the eyeballs, stupid.

Raymond says most of the hard work in making software is finding and characterizing bugs. That's why giving the source code to so many volunteer programmers works so well. The more eyeballs stare at that code and propose fixes, the more complete will be the understanding of the bugs. And the easier they'll be to resolve.

And it's not just the number of eyeballs. It's the variety of eyeballs — self-taught programmers and Ph.D.'s, corporate veterans and Gen Y hackers, coders from Thailand and Finland and Brooklyn. The wider the experience range, the more bugs they'll catch — and the better they'll understand their implications.

But users *must* have access to source code, Raymond says. Just reporting bugs to some black hole of a software company loses most of the analytical value of all those eyeballs. Thus, for really good software, you've got to have open source.

I think he's almost right. And for corporate IT shops, that *almost* is crucial.

Some users don't need source code at all. And *their* eyeballs, we *really* need.

Face it, we're not in the open-source development business. Our users couldn't read the source code if we gave it to them. They'd never spot a missing *free* or a dubious *do.* So maybe it sounds like we haven't got any lessons to learn from this fancy-schmancy open-source development model.

But, hey, we've still got all those user eyeballs. And the cold reality is that they know what the code is ultimately supposed to do much better than we do.

Some users are superb at characterizing an application's design flaws, bizarre behavior and fractured business logic. They don't need the source code — they can see what's wrong with the application, because their jobs are the ones being hampered by the program's problems.

But they do need developers who think users are something more than an annoyance.

Too often we just want to write a bug report and hand them a work-around.

That's a waste. Those eyeballs can see what's wrong, and the brains behind them can tell us why it's wrong, how it needs to function, what dumb programmer pitfalls to avoid. We need to get inside their heads, pump them for every insight they can provide.

It's in their interest — they want better applications. It's in our interest — we want to get it right in the next pass.

And we need to get it right — and fast. Because we're not just slinging data anymore. The deeper your shop gets into ERP and e-commerce, the more your developers have to know about operations and sales and marketing. It's a lot easier to find and fix bugs if experienced operations, sales and marketing eyeballs are looking for them — and the more the better.

So even if you don't buy into Linux and open source, maybe you should still cherry-pick the part that will give you and your users a big advantage.

Better start looking into eyeballs — all the eyeballs you can find. ▶

Get inside users' heads. Pump them for insight.

Hayes, Computerworld's *staff columnist, has eye-balled IT for more than 20 years. His e-mail address is frank_hayes@computerworld.com.*

SHARK TANK

USER DEMANDS a rush job on his pet project, a new property-tracking system. Needs it by March 1. Mucho gung-ho, says a pilot fish. So IT tries to set up requirements meetings. Stonewall. No callbacks, no e-mail. The pilot fish finally buttonholes the user. Says we need requirements ASAP. Or do you want to slip the deadline? User: "No, March 1 is crucial." IT guy says OK, let's meet today. Peevish user: "Why do you have to have such an aggressive schedule?"

AN ASSET-MANAGEMENT group at a huge New York bank had a killer '99. Record profit. Naturally, the brass then "severely cut bonuses for the entire IT department," a pilot fish says. (IT suspects the bosses resent all the dough spent on Y2K.) Payback: IT grunts – lots of them – got the flu. On the same day. Ever try to run an investment bank with no IT staff? The brass had to lure everybody back with 15% raises. The bonuses would've been a lot cheaper. Pilot fish: "I guess they do a better job managing other people's money than they do their own."

SO THIS Y2K project manager just got promoted to vice president. Which sticks in the craw of the rest of the IT staff. Why? The same project manager removed the century from all data files. In '95, no less. "I'm wondering what I can remove from the database so *I* can be made VP," a pilot fish says.

CORPORATE TRAINER orders a Dell laptop. Has problems. Gets jerked around by customer support. Using the naming convention from the support staff's e-mail, she uncorks a savage letter to Michael Dell himself. Surprise: She promptly gets a call from the CEO's assistant. Scores a free upgrade. (That sound you hear is chuckling Tanksters sending e-mail to the *lellison*s, *billg*s and *h.plattner*s of the world. . . .)

A NETWORK SUPPORT contractor for a Dallas-based consulting outfit was wondering what his next gig would be. Couldn't get a straight answer out of the local salesguy. Found out why last week: Salesguy is moving on. And despite unbelievable demand, he hasn't lifted a finger to land a gig for the contractor. "Instead of finding a new job for me," the pilot fish moans, "he was busy finding a new job for himself."

Leaving Dodge? Kick up a little dust: **sharky@computerworld.com.** For daily dirt: *computerworld.com/sharky.* We print it, you corral a T-shirt.

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